THE RINGS OF METHOD

AN EXPERIENCE INFLUENCED DESIGN PROCESS

A DARCH PROJECT SUBMITTED TO THE GRADUATE DIVISION OF THE UNIVERSITY OF HAWAI`I AT MĀNOA IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

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dedications

To ***Mom & Dad***

Edward, Heather, Alexander

and

Celena

acknowledgments

Reading this thesis there are moments where I have reflected on my own experiences. There is no combination of words that could comprehensively explain every moment. Amidst each moment there has been no greater experience than having grown up as my parents son. Each model for success and every lesson from failure I must attribute to the foundations of my family.

Throughout the past few years of school I have been very fortunate for the many opportunities to create relationships with many personally influential people. It is a great gift to be blessed with great friends. The seven years of school has been a process that is intense, joyous, demanding, inspiring, sleepless, and at times lonely. I have been truly blessed with a friend that can so easily understand what I am designing and can push me to create and even better design with so few words.

Coming to Hawai`i I was fortunate to be surrounded by my culture which I was not raised in. Of the many things I have learned about Hawaiian culture, there is one ideal that I will take with me wherever I go, which is that some things we do not choose but we receive them. This ideal has never been more true having reconnected with Celena ten years after we first met. Ho`omaika`i au i ka lā a pau no ua loa`a `ana ia`u `oe.

Despite every experience and lesson this thesis truly would not have been possible without the help and guidance of seven people. Uncle Justo, Mrs. “T,” and “Baby Shakaboomboom” (Kaylee), I could not have asked for better test users. Thank you for your willingness to share you experiences and explore them in and architectural design. Scott, Peter, and Kaleo your similar yet diverse backgrounds have enriched this thesis beyond my own capacity. And finally Ma Ry, this thesis is truly a reflection of every bit of knowledge you have passed on to me. I can only hope this thesis brings you pleasure.

abstract

With regard to architectural design, the collaboration between architects, designers, and end-users is an important aspect that facilitates an increase in the functional and sensorial experience of place and the built environment. Contemporary design philosophy tends to acknowledge the importance of the end-user while the parameters of art destined for the market require at least a passing understanding of the end-user. End-users are not static; they are dynamic. In spite of this however, there seems to be less regard for the need for space to be able to evolve dynamically as the experiences of the user grows.

This thesis argues that users should be influential aspects of the design process. A design process which should be dynamic yet faithful to the context of the user. Three exploratory design experiments were conducted to help illustrate this argument. To ensure that the experiments focused on the exploration of a unique design method, three singular users aided in the design experiments rather than user groups. With the end goal of a residence design, each user started with similar parameters and each project evolved distinctively. This process explores the synthesis of the user's experiences as a basis for the design framework, to inform architectural expression and to allow the architectural space to morph. The resulting buildings support the argument that if buildings are designed with the specific intention of one place, then the process by which architects design should be equally significant to one specific user or user group.

Deeper explorations of User-Centered Design, Participatory Design, Metadesign, and Service Design are the basis for exploration of an evolutionary design methodology. The project seeks to highlight a dynamic design process that connects the intrinsic experiences of a user to the design process and is manifested throughout the architecture in a meaningful experience.

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preface

"... to inform architectural expression and to allow the space to morph."

Figure 0.1 Text Quote

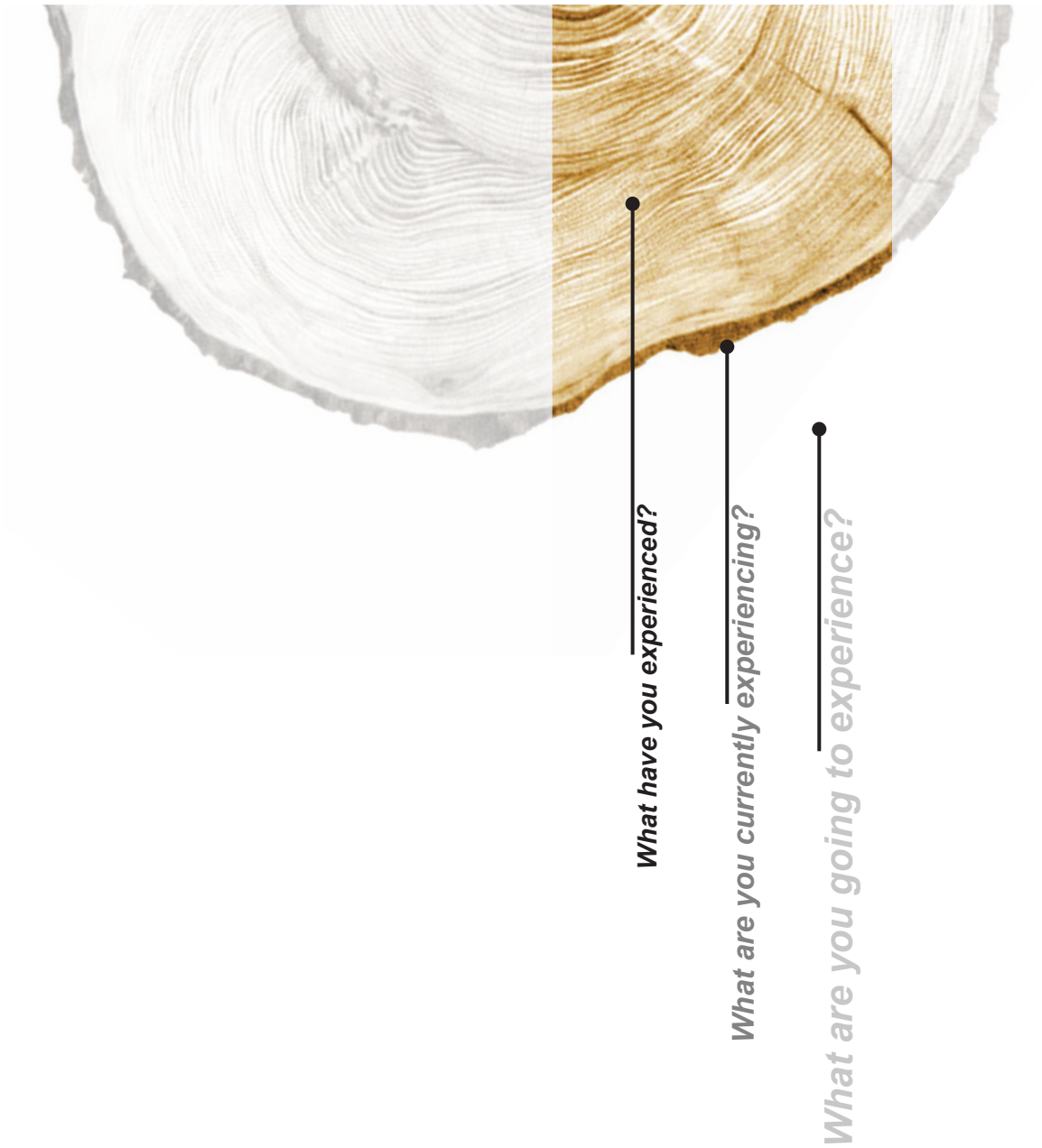
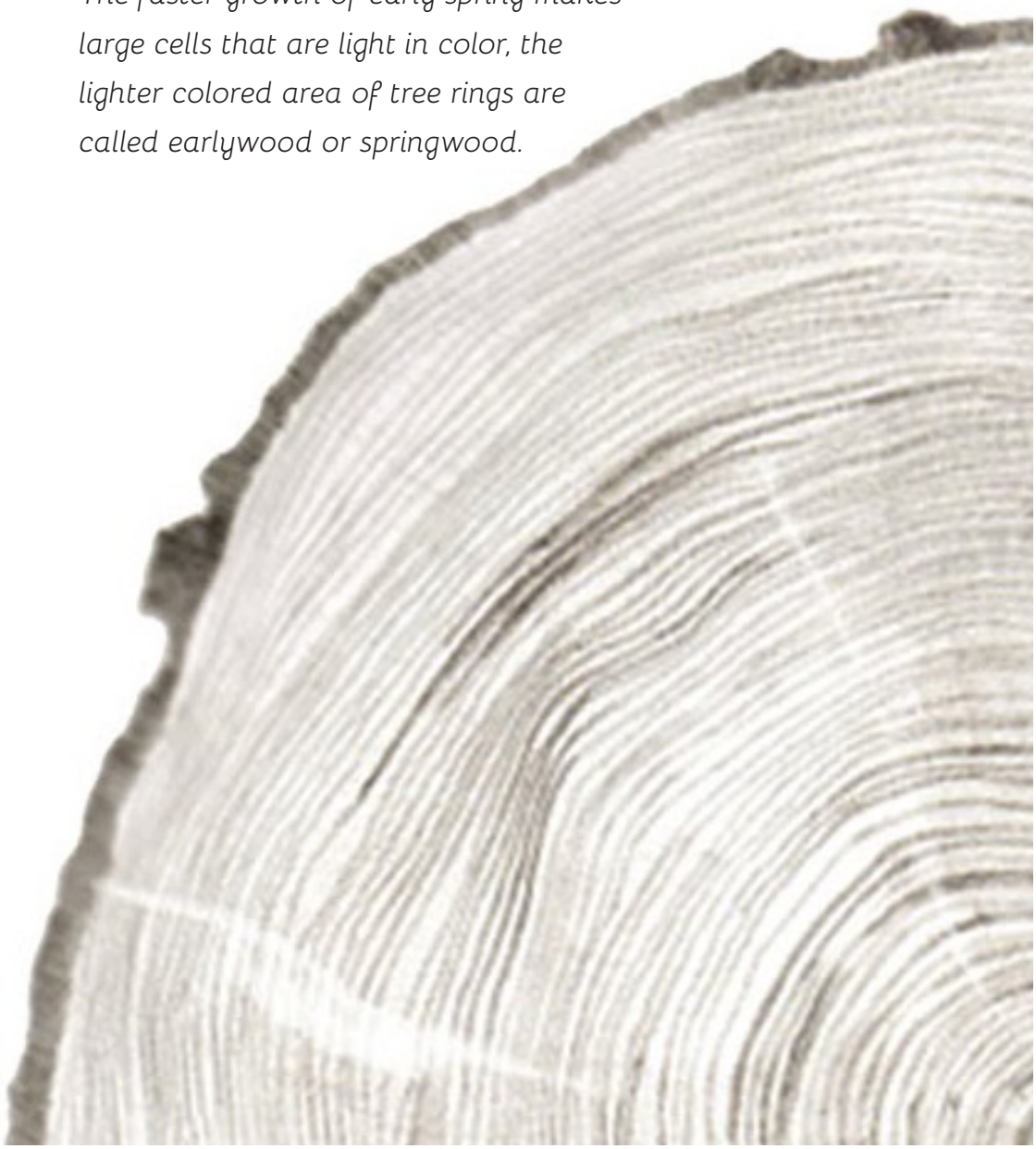


Figure 0.2 Three Experiences

Part I:

Early Wood (research)

The faster growth of early spring makes large cells that are light in color, the lighter colored area of tree rings are called earlywood or springwood.



chapter 1. introduction

The structure of each and every tree is shaped by a series of unique experiences. Children in primary science classes are taught to count a tree's growth rings to identify its age. These rings, however, reveal much more than simply age; they are the story of the unique internal and external variables which have influenced the make-up and life of the tree.[1] Similar to human fingerprints, no two trees have identical growth rings. There may be similarities, but the experiences attached to each tree is uniquely different from another's. These experiences cannot be replicated; they exist for one specific location and one specific tree. Through careful examination of these rings, the distinctive story and experiences of each tree are articulated. The rings reveal, among other things, this life form's journey through injuries, drought, insect infestations, illness, fire, flood, as well as times of plenty. A tree's growth rings reveal much about a tree's past, but can this recorded story give a voice to its future? What predictions can be made about its future experiences and their effects on the tree's physical make-up?

Similar to trees, a unique set of experiences shapes each person. These experiences stack, layer upon layer, altering the way that person subsequently experiences the world. A young teenage girl reading Romeo and Juliet for the first time may be entertained by its depiction of parental and romantic relationships. A novice at romance, she may even use the story as the basis for understanding and negotiating her initial steps into personal romance. Fifteen years later, this slightly older and wiser young woman could revisit the story, and this time draw greater understanding from its narrative. She may even conclude that her original notions of relationships drawn from it are completely wrong. The words and story are the same. She has changed and grown into something more than she was at the first

1. Dr. Kim D. Coder, "Tree Growth Rings: Formation and Form," Warnell School of Forestry and Natural Resources, accessed February 21, 2013. http://warnell.forestry.uga.edu/service/library/for99-020/.

reading. The deeply personal meaning that she draws from Shakespeare's masterpiece is a result of the distinctive experiences of her personal life narrative.

Many architects attempt to create unique, sensorial experiences through their designs. Take for example "the Voids" at the Jewish Museum Berlin (designed by Daniel Libeskind). Libeskind created a series of empty concrete spaces twenty four meters high that is dimly lit with one aperture at the roof. Visitors describe the space as evoking a feeling of isolation and disturbance. The attempts in sensorial experiences created by designers like Libeskind are often judged successful in a general sense, but it is difficult to discern whether or not the architects and their designs have created meaning for individuals. Even though the architecture creates an identifiable experience, the argument to be made that the experience, because it is so generalizable, is not significant to everyone potentially including the targeted end-user. The question then is how to design an architectural experience that is deeply meaningful to the user?

Answering this question is difficult, It is impossible for one person to understand all the experiences that influence another person. The architect must understand not only these experiences, but must also create spaces that speak of those experiences. The architect who wishes to give a voice to these experiences in his design must explore the user and his or her evolution as a part of his design process. These two components present specific challenges; they are dynamic; that is to say ever-changing and evolving. The incorporation of these elements into design demands a new methodology. This thesis looks to create a personal methodology of design, one in which the design process does not just involve the user, but one in which the design is influenced by the user. A process that is reliant on the user must naturally be dynamic, and allow the completed space

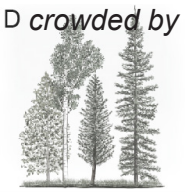
to morph to accommodate the user's changing and evolving experiences. In essence, the architect must use the rings of the user's life to create a meaningful space for the rings that are yet to be formed.

A *tree is born*

B *rapid even growth*

C *something fell on tree*

D *crowded by others*



E *trees are removed*

F *fire*

G *dry spell*

H *insects*

"the architect must use the rings of a user's life to create a meaningful space for the rings that are yet to be formed."

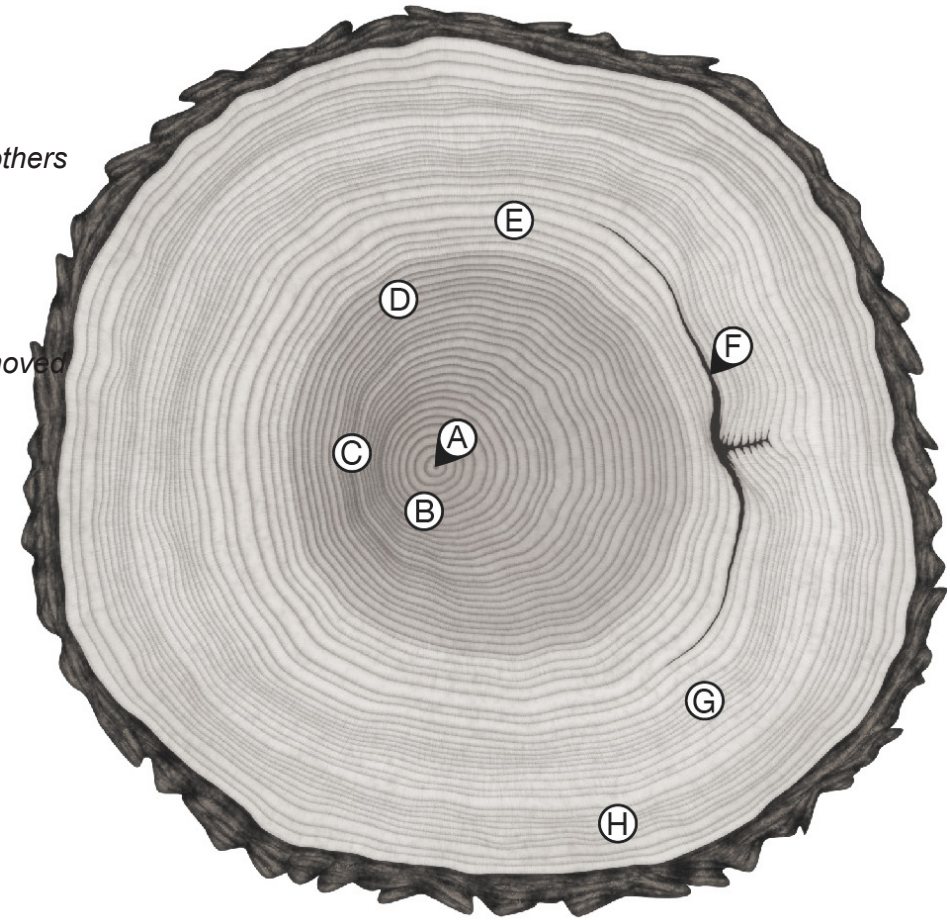


Figure 1.1 Tree Growth Ring Response to External Influences

chapter 2. review and history of design thinking

The design process is a cognitive activity that is not easily defined and therefore, one that is difficult to understand. As a part of their education, architecture students are taught tools that help them navigate through the conception and development of a design idea. Although these tools cannot completely elucidate the design process, they assist students in attempting to synthesize the multiple layers of information that are considered in the design of a building. *The History and Objectives of the Yale School of Architecture* explains that rather than imposing a specific design philosophy on students, instead, they are taught various design approaches, which the school, "encourages in each student the development of discernment and an individual approach to design."[2] This is a common belief shared amongst many architecture schools.[3] As students grow into young designers they pick and choose the combination of tools to use, which becomes their unique design process. This method of educating and shaping designers has resulted in a variety of unique design processes. Because of this it is impossible to attempt to define a single definitive process that guides every designer. Instead, it is more appropriate to understand the methodology behind various design trends.

> "design methodologies that focus on the involvement of the user"

Figure 2.1 Text Quote

Throughout the history and evolution of contemporary design thinking there are five major design methodologies that focus on the involvement of the user (see figure 2.1 Timeline of Design Thinking); *Participatory Design, User-Centered Design, Metadesign, Service*

2. Yale School of Architecture, "History and Objectives," Accessed February 16, 2013, http://architecture.yale.edu/school/history-objectives#.

3. Ibid.

Design, and Human-Centered Design.[4] Although these approaches to design were not direct responses to architectural design, the methodologies have carried over into various design disciplines including architecture and have thus shaped the process of designers from various disciplines.

Reviewing the history and evolution of these methodologies

4. Stefanie Di Russo, "A Brief History of Design Thinking: How Design Thinking Came to 'Be'," *I Think I Design* (blog), June 8, 2012. http://ithinkidesign.wordpress.com/2012/06/08/a-brief-history-of-design-thinking-how-design-thinking-came-to-be/.

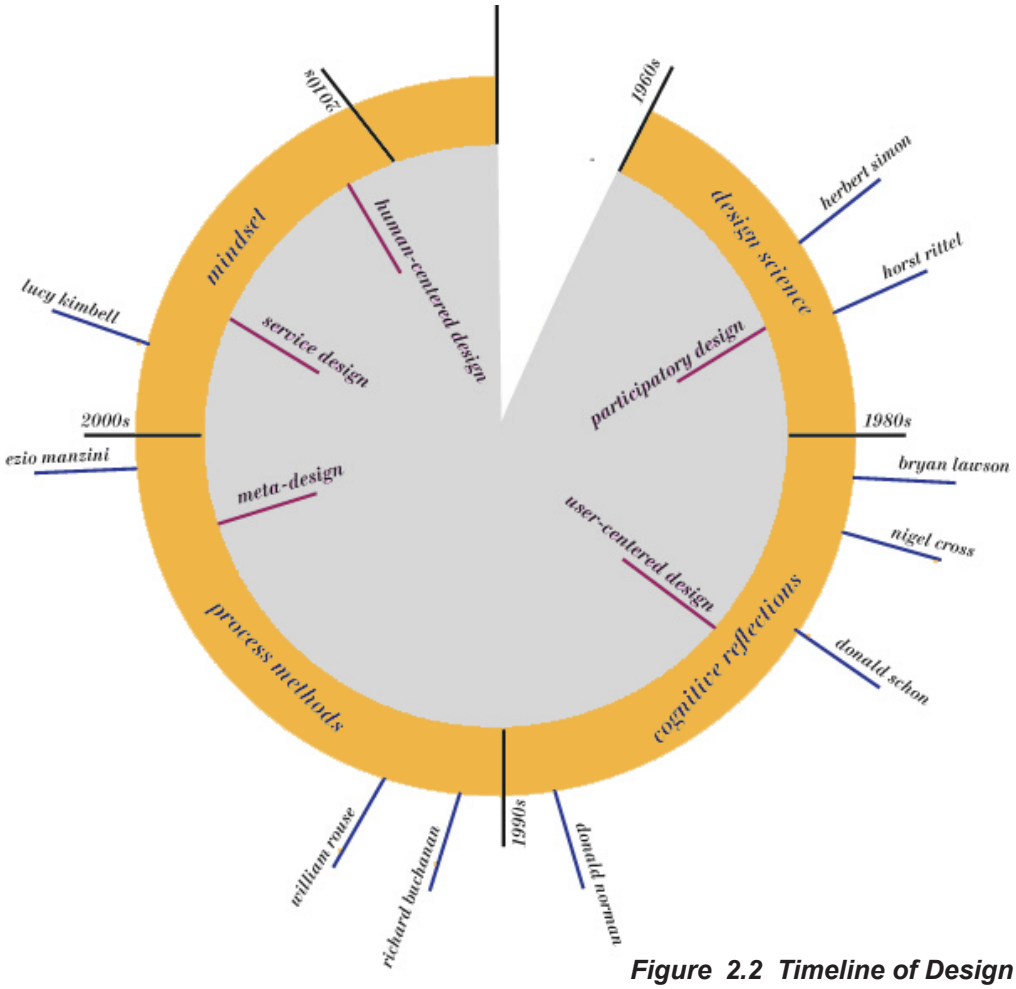


Figure 2.2 Timeline of Design Thinking

is difficult. Typically illustrated in an evolutionary chronological format, examples like Di Russo's time line of design thinkings can be misleading. In reality, the time periods and methodologies blur into each other. Identifying the timing of events in the evolution of these design methodologies is less important than understanding each individually by dissecting the core ideals by which they are characterized. Only after reviewing these key methodologies and their real-life application can conclusions, which lay the foundation for the formulation of a new design hypothesis, be made. The review will only cover the first four design thinkings, *Participatory Design, User-Centered Design, Metadesign,* and *Service Design.* Even though *Human-Centered Design* has been added into the time line it is an evolved form of *User-Centered.* There are slight variations but the core ideas align with *User-Centered Design.*

2.1 Participatory Design

Participatory Design can arguably be traced back to Plato's *Republic*, which outlines Plato's fundamental principle of seeking the consultation of his people.[5] Although the characteristics of Plato's republic are relate-able, the core ideas from which Participatory Design emerged, came from a movement that originated in Scandinavia, called the Collective Resource Approach.[6] This movement originated in a series of trade union projects beginning around 1960, most notably; the NIMF project (Norwegian Iron and Metal Workers' Union), the Swedish DEMOS project (*DEMOkratiske Styringssystemer*), the Danish DUE project (*Demokrati,*

5. Stefanie Di Russo, "A Brief History of Design Thinking.

6. Stefanie Di Russo, "A Brief History of Design Thinking; Philip Kraft and Jørgen P. Bansler, " The Collective Resource Approach: The Scandinavian Experience," *Scandinavian Journal of Information Systems*: Vol.6: Iss. 1, Article 4, pp 72.

Udvikling og Edb), and the UTOPIA project (*Utbildning, Teknik, och Produkt I Arbetskvalitetsperspektivthat),* all of which were all based on, "involvement of workers in the design and implementation of the tools and machines they use in their work."[7] These projects incorporated the various end-users and stakeholders in active participation during the design of the systems that they were affected by, thus allowing for a higher quality system. This core ideal eventually became the fundamental premise of Participatory Design.

> "... inserted into the design team ... the graphics workers communicated their requirements using demonstrations, mock-ups, and simulations."

Figure 2.3 Text Quote

During the formative years of the Collective Resource Approach, designers and their projects created a better understanding of a democratic approach to systems design.[8] The UTOPIA project, however, introduced a specific key characteristic of participatory design, low-tech prototyping. The goal of the UTOPIA project was the development of a computer program that allowed graphic designers to produce high quality graphics with an emphasis on image processing in the newspaper industry.[9] The graphics workers created a specifications document that detailed their requirements for the program, however, the design team tasked with creating the new program found the specifications document an inappropriate method of

7. Gro Bjerkes and Tone Bratteteig, "User Participation and Democracy. A Discussion of Scandinavian Research on System Development," *Scandinavian Journal of Information Systems*: Vol.67 Iss. 1, April 1995, pp 74. Available at: http://home.ifi.uio.no/tone/Publications/Bjerk-bratt-sjis-i95.html; Susanne Bødker et al, " Co-operative Design - perspectives on 20 years with 'the Scandinavian IT Design Model'," (Keynote Presentation at the Proceedings of NordiCHI 2000, Stockholm, Sweden, October 2000). See Bjerkes and Bratteteig for a more detailed history of the Collective Resource Approach.

8. Gro Bjerkes and Tone Bratteteig, "User Participation and Democracy, 74.

9. Ibid, 74.

communicating the requirements mainly because they could not understand the terminology that was used by the graphics workers.[10] To solve the problem, the graphic designers were inserted into the design team, eliminating the need for the specifications document.[11] The team came up with a design approach named, "design-by-doing," where the graphics workers communicated their requirements using demonstrations, mock-ups, and simulations.[12] The mock-ups were, unsophisticated depictions, "like paper boxes representing mouse and laser printers," but, they allowed the design team to have a better understanding of the requirements of the graphics workers.[13]

> *"The mock-ups were unsophisticated depictions ... but they allowed the design team to have a better understanding."*

Figure 2.4 Text Quote

At the time of first implementation, the Collective Resource Approach was experimental and therefore was not defined by a specific process. In the early days of the union projects in Scandinavia the design activities typically occurred during design workshops, but there was still no formal process.[14] Over a short period of time, the methodology gained worldwide popularity amongst many designers. It was later renamed Co-operative Design, and then Participatory Design, the more commonly recognizable name in the United States. The increased practice of Participatory Design made certain distinctions apparent that differentiate this methodology. In the article "The Methodology of Design," Clay Spinuzzi describes Participatory Design as an iterative process that involves three stages of co-design by the user and designer.

10.Gro Bjerkes and Tone Bratteteig, "User Participation and Democracy, 74.

11. Ibid, 74.

12. Ibid, 75.

13. Ibid, 75.

14. Clay Spinuzzi. "The Methodology of Participatory Design," *Technical Communication:* Vol. 52, Number 2, May 2005, pp 167.

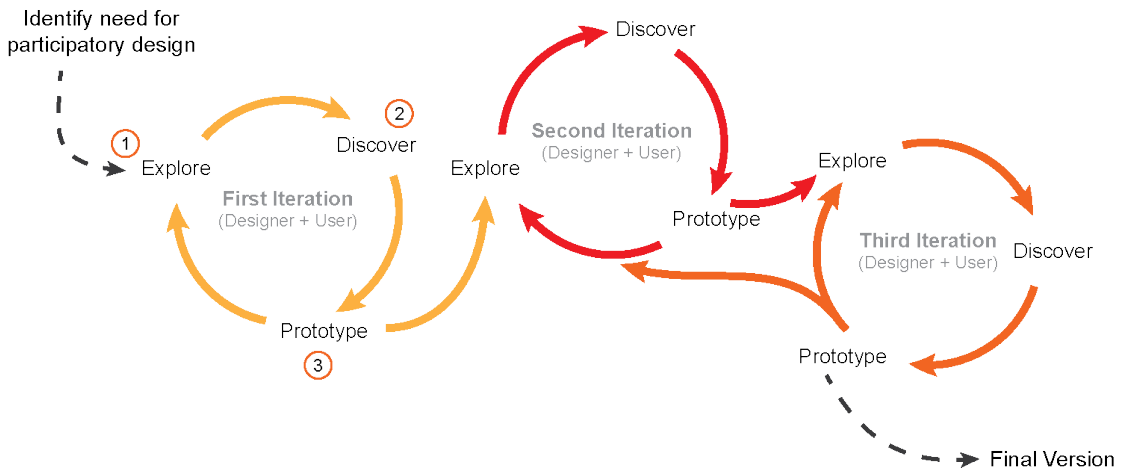


Figure 2.5 Participatory Design Process

Stage 1: Initial exploration of work

In this stage, designers meet the users and familiarize themselves with the ways in which the users work together. This exploration includes the technologies used, but also includes work flow and work procedures, routines, teamwork, and other aspects of the work.

Stage 2: Discovery processes

In this stage, designers and users employ various techniques to understand and prioritize work organization and envision the future workplace. This stage allows designers and users to clarify the users' goals and values and to agree on the desired outcome of the project. This stage is often conducted on site or in a conference room, and usually involves several users.

Stage 3: Prototyping

In this stage, designers and users iteratively shape technological artifacts to fit into the workplace envisioned in Stage 2. The prototyping which involves one or more users can be conducted on site or in a lab. If the prototype is a working prototype it is typically created on-the-job.[15]

15. Clay Spinuzzi. "The Methodology of Participatory Design," pp 167.

Key Characteristics of Participatory Design:

- Focus on how the product specifically fits the needs of the users.
- The designers and users are distinct but the roles of design are blurred.
- Mock-ups and prototyping are an integral part of the process.
- The overall process is iterative with numerous subprocesses aiming at iterative refinement.

2.1.1 Boulder Creek Library: Case Study

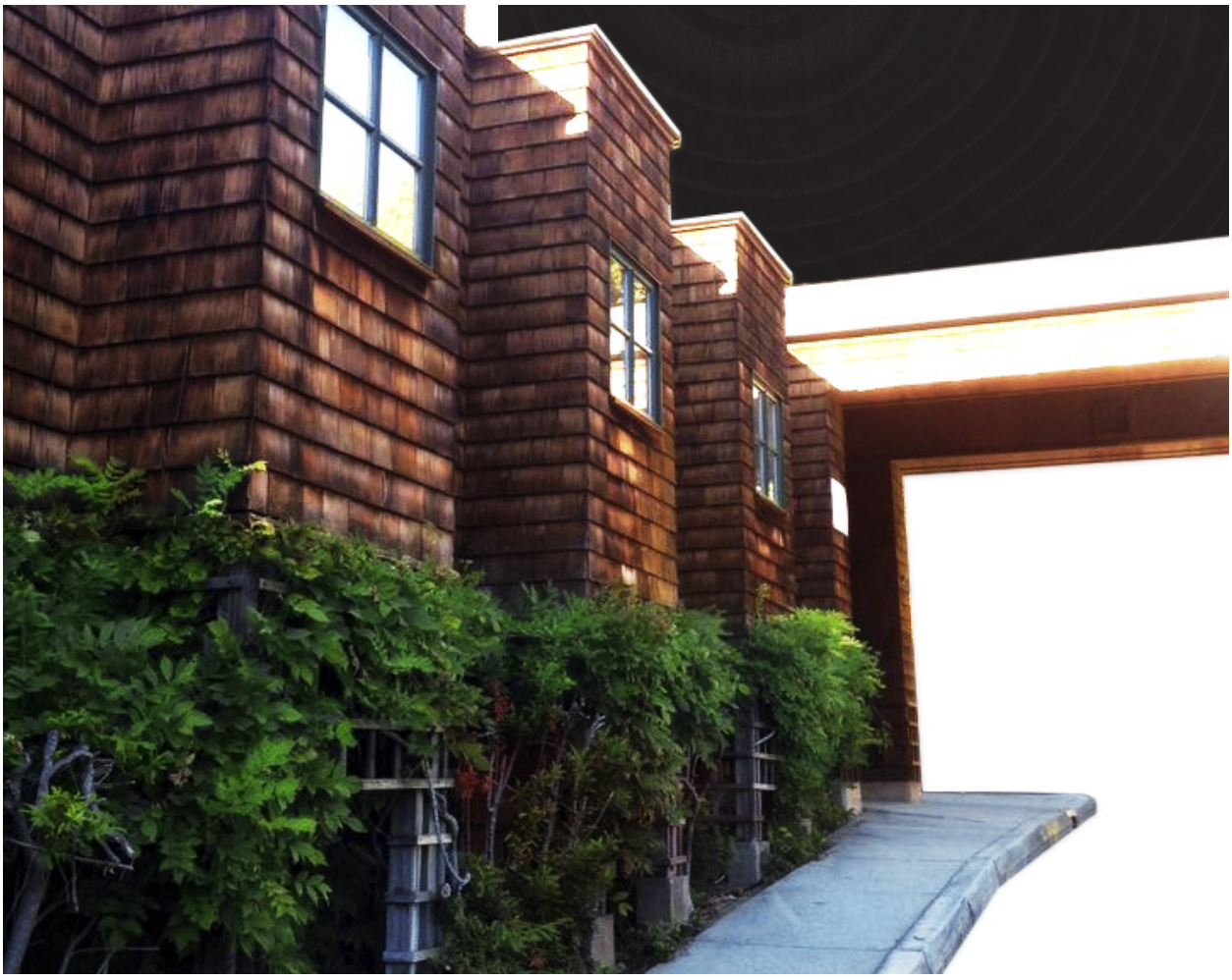


Figure 2.6 Boulder Creek Library Entrance

The Boulder Creek library (located in Boulder Creek, California), has a long running history of close ties to the community of Boulder Creek. This relationship dates back to 1906 when the library was first established.[16] Over the years, the library had been forced to move in and out of various buildings. By the mid 1970's the community decided that there was a need for a larger more permanent building specifically for the library.[17] Early in the process the community determined that it wanted to have a voice during the design of the new library.[18] The community selected Jeff Oberdorfer as the architect because of his unique ideals in Participatory design.[19]

16. "About the Branch." Last modified October 18, 2011. http://www.santacruzpl.org/branches/5/.

17. "About the Branch."

18. Ibid

19. Jeff Oberdorfer, "Community Participation in the design of Boulder Creek branch Library," *Design Studies,* Volume 9, Issue 1, January 1988.

The design team led by Oberdorfer devised a plan that allowed every person in the community design group to have an input as they collectively identified goals, issues, and objectives of the new library. Through an iterative refinement process the group translated these drivers into a series of floor plans. The group decided the characteristics of each floor plan that formed the basis of the design development. This entire process which the design team named, "consensus decision-making," was carried out through three specific goal oriented workshops.[20]

Before engaging in the workshops the design team developed a brief so that the users could understand the functional spatial requirements of the building, staffing requirements, and site conditions.[21] The group was divided into smaller groups of five to seven people, further debriefed about the entire process, and informed of the goals of the design process:

20. Jeff Oberdorfer, "Community.

21. Ibid.

1. the location and arrangement of spaces within the library
2. Site plan relationships such as building orientation, user entry and arrival, parking location, and the character of exterior space
3. the feeling, or ambiance, of the library and surrounding site.[22]

> *"The design team facilitated the process and synthesized the ideas of the users without imposing their own ideas"*

Figure 2.7 Text Quote

To ensure that the everyone's input was equally weighted, the design team expressed the importance that every decision made by the smaller groups must be agreed upon by entire group.[23]

Before starting the workshops the design team outlined the objectives of each workshop to help guide the process.

The objective of the first workshop was to define the guiding vision of the library design.[24] The workshop began with a large scale brainstorming session. Collectively the group determined a list of forty three goals.[25] After establishing the larger goals of the project, the large group broke into smaller groups. The smaller groups were asked to illustrate as many of these goals as possible, using diagrams, drawing building elements, images, words, or anything they felt necessary.[26] The design team facilitated the process by suggesting to the groups ideas that would help them to illustrate their own personal ideas. After these illustrations were completed the entire group participated in a gallery walk and discussion of the ideas that were presented.[27] The workshop concluded with a wrap-up summary of the days accomplishments.[28] The designers organized all of the information created

22. Jeff Oberdorfer, "Community.
23. Ibid.
24. Ibid.
25. Ibid.
26. Ibid.
27. Ibid.
28. Ibid.

throughout the day and each person involved was given a copy.

The second workshop began with a short presentation reviewing the work from the previous workshop.[29] The next step as explained by the design team was to develop conceptual site and building plans. The main goal here was to allow the users to begin to articulate their project objectives into the actual design. Again breaking into smaller groups, each group was given the task of developing plans. As the workshop progressed issues were brought forth that would alter the design of the library. These issues included solar exposure, noise, parking, pedestrian travel, amongst others.[30] As much as possible the group was encouraged to not focus on the external influences that would affect the design, but to translate their ideas into architectural form. The workshop again ended with a discussion of all the plans generated.[31] The design team further concluded this workshop by compiling the plans generated in hopes of putting together three schemes.[32] However, because of the strong similarities between the various plans one final concept plan was developed.[33]

The final workshop began with a summary presentation of the process up until that point. The presentation illustrated how the overall objectives, were translated into ideas, developed into architecture, and finally synthesized into one plan. The original intent of the workshop was to develop three schemes and allow the group to determine which one would be selected to move forward.[34] The opening presentation displayed why this initial idea had to be abandoned, because of similarities between all of the plans. The design team concluded the workshop with a general discussion identifying the

29. Jeff Oberdorfer, “Community.
30. Ibid.
31. Ibid.
32. Ibid.
33. Ibid.
34. Ibid.

advantages and disadvantages of the final scheme.[35] The discussion allowed for further concerns to be considered by the design team for the duration of the design development. Upon closing the final workshop, six volunteers agreed to continue participation as the project progressed through design development and construction.[36]

The Boulder Creek Library design process is one in which the design team implemented a strategic method of incorporating the users into the design process. The design team facilitated the process and synthesized the ideas of the users without imposing their own ideas too forcefully.

35. Jeff Oberdorfer, “Community.

36. Ibid

2.1.2 Vignes Blanch: Case Study

Figure 2.8 Vignes Blanches

Vignes Blanch was a response to the degradation of the urban landscape and the function of community in France due to World War II.[37] Britain's Prince Charles decided to remedy this problem by creating a new community architecture. [38] Lucien Kroll was selected as the designing architect because of his encouragement of community architecture or participatory design.[39] Kroll brought to the project a design philosophy that would, "include inhabitants in the design process so they may obtain what they desire and endow the neighborhood with the diversity and complexity of older villages that 'grew' more gradually and spontaneously."[40]

> *"there was little desire by the community to be involved in a lengthy time consuming process"*

Figure 2.9 Text Quote

By 1938 a total of forty houses were completed in Cergy-Pontoise, France, as a part of Vignes Blanches. Through the progression of the project the participatory method that was intended to drive the project did not carry the project as intended. "It turns out that only three of the forty-three households who ultimately moved into the Vignes Blanched were actually involved in the participatory process."[41] Due to a lack of people who wanted to be involved in the process, the participatory process naturally defaulted into a more traditional method of design. Ultimately this showed in the end design, residents of nearby communities, "are unaware that it was not designed according to a standard procedure."[42]

Although there were not many people who desired to be in the design

37. Nan Ellin, "Architecture on the Parisian Periphery: Lucien Kroll's Vignes Blanches,"
Journal of Architectural Education Volume 53 Number 3 (2000):178.

38. Ibid, 178.

39. Ibid, 178.

40. Ibid, 180.

41. Ibid, 179.

42. Ibid, 179.

process, a small few were interested and participated as much as possible. “But if inhabitants do not share Kroll’s admiration for the rural village and have other models in mind,” then that inhabitant’s ideas will be sacrificed.[43] Several interviews with both Kroll and the users reveal that, although he was selected for the project because of his proclivity for participatory design, he exhibited a general disregard for the wants of the users. His comments during these interviews confirms that, “Kroll doesn’t really want to listen to the various and idiosyncratic preferences of the inhabitants.”[44] In response to this critique, Kroll argued that if the inhabitants ideas were implemented without provocation by the architect then a mediocre design would have been produced.[45]

The project at Vignes Blanch failed at the most basic level of Participatory design. First, the project was conceived on the notion that the community would have direct participation; however, the community had little desire to be involved in a lengthy time consuming process. Second, the architect had his own ideals that competed with the wants of the few inhabitants who did participate.

43. Nan Ellin, “Architecture on the Parisian Periphery,” 179.

44. Ibid, 180.

45. Ibid, 180.

2.2 User-Centered Design

In their pivotal book entitled, “User Centered System Design: New Perspectives on Human-Computer Interaction,” Norman and Draper coined the term User-Centered Design.[46] The two editors bring forward questions that allow for thoughtful discussions of what User-Centered Design could be such

46. A Survey of User Centered Design Practice

as, “what are the goals and needs of the users,” what tools do they need to achieve these goals, and how they prefer to use the tools.[47] While the book gives no clear explanation of what User-Centered Design is, it does allude to the idea that there should be an emphasis on the wants and needs of the user, as opposed to the usability of the system or product being designed, which is the focus of Participatory Design.[48]

> *“It is not always that the specific end-user is consulted … in some instances abstractions about the user may occur.”*

Figure 2.10 Text Quote

Throughout the two decades following the introduction of Norman and Draper’s book, User-Centered Design became a very popular ideal in various design disciplines. Many research topics were aimed at trying to clearly define User-Centered Design, as well as the process by which it is used. There is a general consensus that User-Centered Design is a multidisciplinary approach that actively involves users throughout the design process so that the designers thoroughly understand the user or users, and their specific task requirements.[49] Although User-Centered Design concepts theoretically include the actual user as a part of the design process, in reality the application of User-Centered Design merely takes into deep consideration the functional requirements of users.[50] It is not always the case that the specific end-user is consulted throughout the design process. In some instances abstractions about the user may occur in the form of a researcher, most times a social scientist, one who has studied and has knowledge

47. Donald A. Norman and Stephen W. Draper, editors, *User Centered System Design: New Perspectives on Human-Computer Interaction (*Hillsdale, New Jersey: Lawrence Erlbaum Associates, 1986), 2.

48. Ibid, 2.

49. Ji-Ye Mao, Karel Vredenburg, Paul W. Smith, and Tom Carey, “The State of User-Centered Design,” *Communications of the ACM,* March 2005, 105.

50. Leanne Bowler et al, “Issues in User-Centered Design in LIS,” *Library Trends,* Volume 59, Number 4 (Spring 2011): 731. doi: 10.1353/lib.2011.0013.

of the user. In general terms this is especially true for large user groups.

In User-Centered Design, whether the actual user is involved in the design process, or a consultant is involved, the methodology focuses on iterative design. Originally outlined in ISO 13407:1999, figures 2.11, 2.12, and 2.13 illustrate the iterative quality of the process.[51]

After ten years of implementation and use, ISO 13407:1999 was updated to ISO 9241-210:2010. Even though User-Centered Design was accepted by the International Organization for

51. Vincent Kahl, *"Application of User-Centered Design for a Student Case Managements System,"* (Thesis, Uppsala University, August 2011).

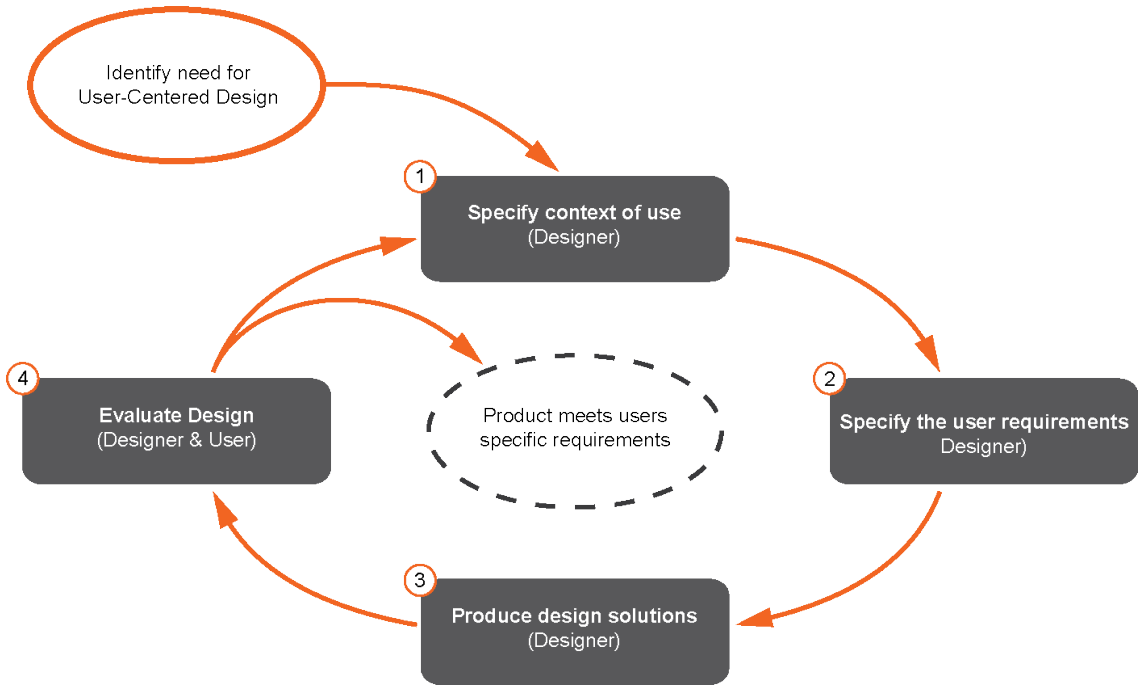


Figure 2.11 ISO 13407 Standard for User-Centered Design processes

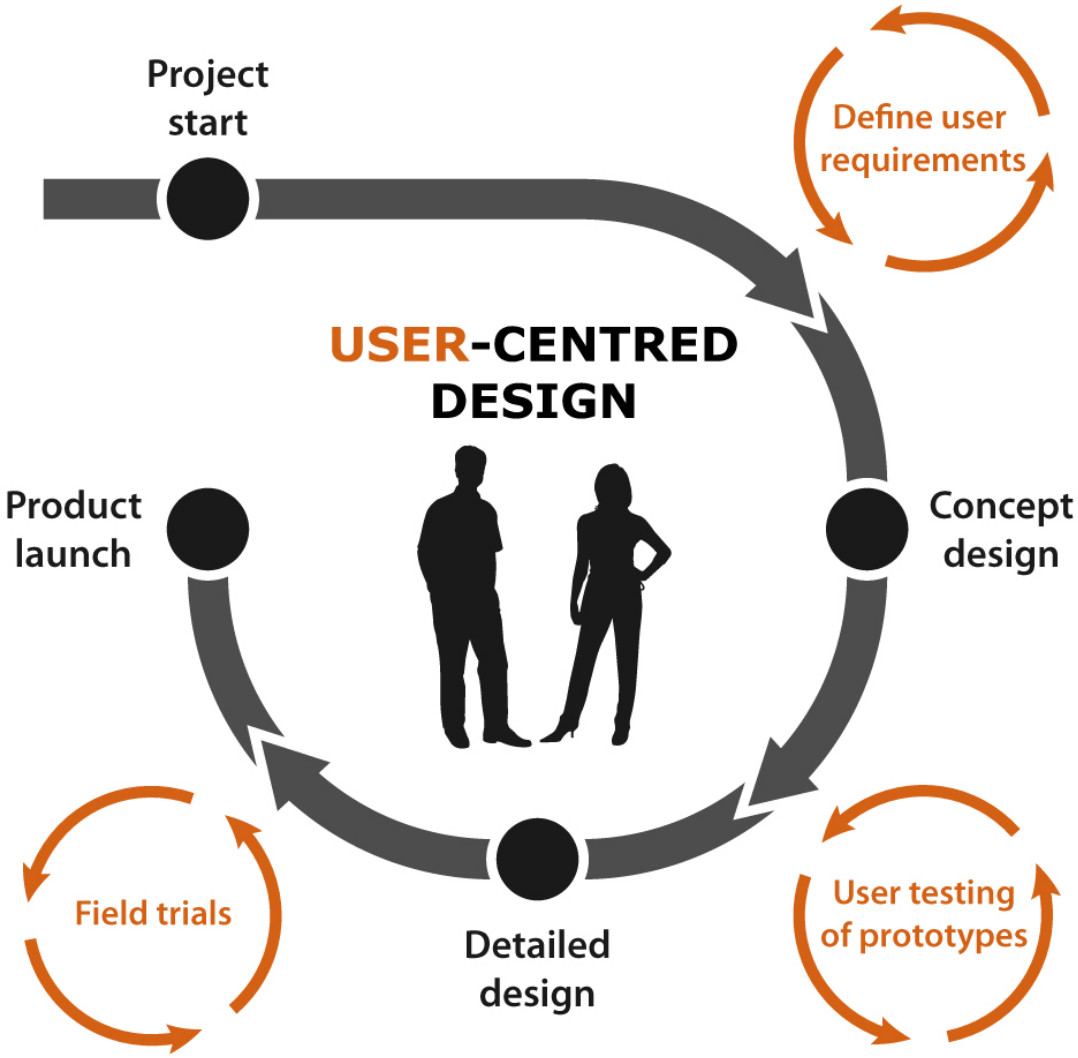


Figure 2.12 Emotive Systems User-Centered Design Process

Figure 2.13 Bas Leurs et al User-Centered Design Process

Standardization, ISO 9241-210:2010 still does not provide a universally accepted definition; it is instead a guide to assist with the implementation of User-Centered Design.

The process which was carried over to ISO 9241-210:2010 consists of four main steps. It begins with an understanding of the context for which a system will be used, as well as the tasks used in the system.[52] In the second step, the usability requirements are established which is a direct response to the users; therefore, a specification of the users is established at this stage.[53] The process continues with design solutions that are a synthesis of the requirements, parameters, and constraints. The final step is a close assessment of the design solutions against the requirements defined earlier, more specifically the unique requirements of the users.[54] The process continues with further refinement or even the addition of new requirements, goals, or users. The iterations continue until the usability goals have been met as best as possible.[55]

As mentioned earlier, ISO 9241-210:2010 does not give a specific definition of User-Centered Design; it does, however, provide a framework for implementing a User-Centered Design process. Over time, many designers have adopted this methodology as a base for their own design process (see figures 2.6 and 2.7). As knowledge about User-Centered Design has developed, designers have formulated their own variations of the process originally illustrated in ISO 13407:1999.

52. ISO 13407 1999, 'Human-Centered Design Processes for Interactive Systems', International Organization for Standardization, Geneve.

53. Vincent Kahl, *"Application of User-Centered Design."*

54. Ibid.

55. ISO 13407 1999

Key Characteristics of User-Centered Design:

- Less emphasis on the usability of a product and greater importance on the user.
- Requirements of the user influence and guide the design process.[56]
- Incorporates those who have a specific knowledge of the user.
- "The roles of the designer and user are distinct yet interdependent." [57]
- The users actively help in the creation of the design parameters, however, they do not partake in the synthesis of the design.[58]
- Evolutionary process, utilizing an iterative process to ensure maximum usability in accordance with the specific wants and needs of the user.

56. Gulliksen et al, "Key Principles for User-Centered Systems Design," *Behaviour & Information Technology, vol 22, no. 6, pp. 402.*

57. Elizabeth B.-N. Sanders, "From User-Centered to Participatory Design Approaches," *In Design and Social Sciences: Making Connections,* edited by Jorge Frascara, 1, (New York, New York: Taylor and Francis Inc, 2002).

58. Gulliksen et al, "Key Principles for User Centered," 402.

2.2.1 DR Byen: Case Study

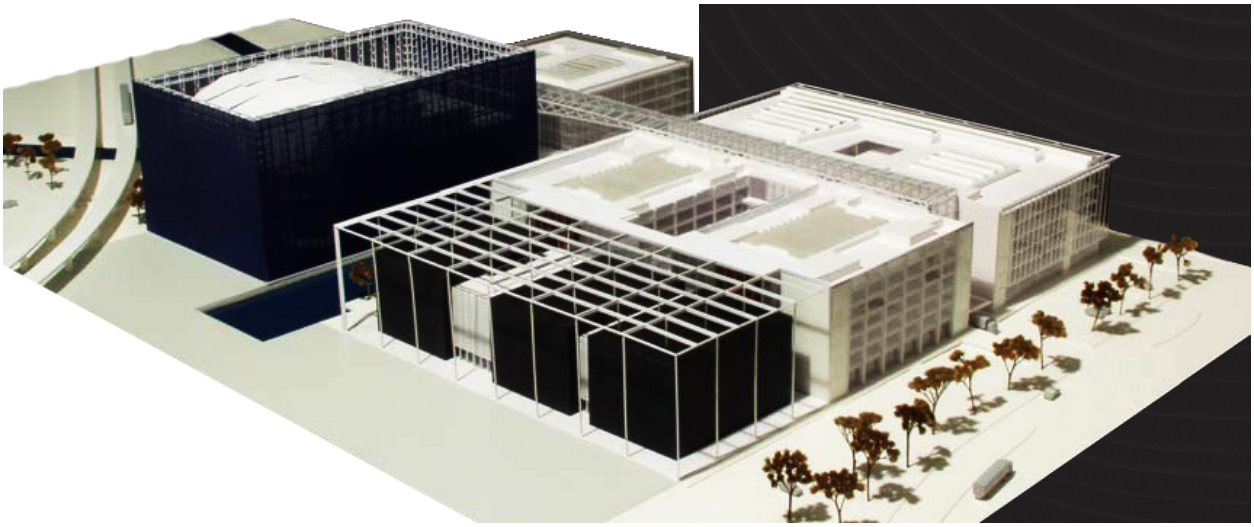


Figure 2.14 Model of DR Byen

The Danish Broadcasting Corporation, DR for short, is the oldest and largest electronic media enterprise of Denmark.[59] Prior to the consolidation of the various departments, DR was spread throughout twelve different places in Copenhagen.[60] The master plan for the new complex was created as a product of a design competition won by Vilhelm Lauritzen AS.[61] The general idea of the master plan splits the 130 square meter complex into four rectangular buildings as shown in figure 2.14. The plan is laid out in a basic two by two grid with an artificial canal dissecting the north and south axis. Along the east and west axis is a second level street that crosses the canal.

During the planning phase, clients decided that the new complex would house all of the departments of DR in one location. DR created the framework for a vision of the design that would ultimately answer two questions, “What does it mean to the Danes?” and “What does it mean to the users?”[62] From the early envisioning of the project, the DR had determined that input from the users or workers would be necessary and the design process would therefore require a User-Centered Design process.

From the beginning of the project with the development of a design brief, through the construction phase of the project various users were brought in to inform and critique design decisions. In the initial stages of the project where the conceptual ideas were formulated, the design team consulted top managers and union representatives.[63] As the design progressed to more detailed and

59. “About DR.” accessed March 14, 2014. http://www.dr.dk/NR/rdonlyres/B96D837A-CC87-4F49-B7A6-7B7FE89E1E22/1217326/introduction_to_dr.pdf.

60. Per Anker Jensen, “Usability of Workplaces: Case Study of DR Byen in Copenhagen,” 1 edn, Centre for Facilities Management - Realdania Research, 2008.

61. Ibid

62. Ibid

63. Ibid

functional aspects, consultations included various end-users.[64] On other occasions, the design team spoke with a briefing project manager who represented the users as a whole.[65]

> *"a successful method for further informing the design team which allowed them to create a space that was specifically tailored to the users."*

Figure 2.15 Text Quote

Rather than dealing with the entire group of users (which could have been the entire company, numbering hundreds of people) the design team created various groups, each comprised of six to ten people that best represented a user type. For instance production staff and technical representatives. In total, there were 21 user groups such as production staff or technical representatives, that were consulted throughout the design process. Consultations took place during workshops. The design team presented their design and ideas while the user group presented their work requirements, gave feedback, and made suggestions. Through these various workshops with the different user groups, the design process became fragmented but iterative.

To better determine the effectiveness of the process implemented and its effect on the usability, Per Anker Jensen from the Center for Facilities Management of Technical University of Denmark, conducted an interview with various users both involved and uninvolved in the design process. The questions focused on process involvement, staff morale, and general usability. The following samples highlight some of the more critical issues brought forth in response to these questions:

- "People have experienced, that rooms were placed differently from where they wanted them."
- "The group based process started fine.

64. Per Anker Jensen, "Usability of Workplaces."

65. Ibid

We were promised a lot. The closer we came to the move, the more limited the design decisions."
- "The architecture has been more important than functionality."
- "The degree of satisfaction depends on who you talk with."
- "Those that were not involved do not care so much about the facilities."
- "The user processes could have been managed more strictly and thereby many resources could have been achieved by a more efficient process."
- "When we moved motivation and energy was high. When people discovered that they could not work the way that they had expected (due to problems with the technology) motivation went down"[66]

Per Anker explains that the designers and client of DR Byen would probably describe the process explored in the design of the new complex to be a successful method for further informing the design team which allowed them to create a space that was specifically tailored to the users. In reality the close examination of the statements made by the staff of DR Byen reveals that there really is a broad range of feelings both positive and negative with regards to the process and overall design.

66. Per Anker Jensen, "Usability of Workplaces."

2.3 Meta Design

Originating in the design of Information Systems, Metadesign was first introduced by Andries Van Onck in 1965. Since the first introduction, the ideas have varied slightly; however, the core ideals behind the methodology have remained intact. "In a world that is not predictable, improvisation, evolution, and innovation are more than luxuries: they are necessities. The challenge of design is not a matter of getting rid of the emergent, but rather of including it and making it an opportunity for more creative and more

adequate solutions to problems."[67] The challenge of including the emergent, as described by Gerhard Fischer and Elisa Giaccardi, defines the driving force behind Metadesign. Metadesign applies the ideas of evolution to systems design, by allowing users to adapt a system to their changing needs, beyond the initial design of the system. From an Information Systems point of view, Metadesign addresses the shortcomings of Closed Systems, through the creation of adaptable systems, meaning that users can enhance and change the core system.[68]

> *"In a world that is not predictable, improvisation, evolution, and innovations are more than luxuries: they are necessities"*

Figure 2.16 Text Quote

Metadesign requires a specific environment. It must be flexible and allow evolution because Metadesign cannot be completed prior to use. Designs must be allowed to evolve in the hands of the users.

Metadesign is similar to Participatory design in that the end-users are co-designers of the systems. Unlike Participatory design, the end-users role continues even after the system has been designed; users are designers of the system throughout its existence.[69] Figure 2.17 illustrates the Metadesign process in which users and designers create the system, and then end-users are given the capability of modifying the system to meet their evolving needs.

67. Gerhard Fischer and Elisa Giaccardi, "Meta-Design: A Framework for the Future of End-User Development," *In End-User Development - Empowering People to Felixibility Employ Advanced Information and Communication Technology,* ed. by Henry Lieberman et al, (The Netherlands: Springer,2006), 427.

68. Gerhard Fischer and Eric Scharff, "Meta-Design - Design for Designers." (paper presented at the Designing Interactive Systems Conference, Brooklyn, New York, August 17 - 19, 2000).

69. Gerhard Fischer and Elisa Giaccardi, "Meta-Design: A Framework, 429.

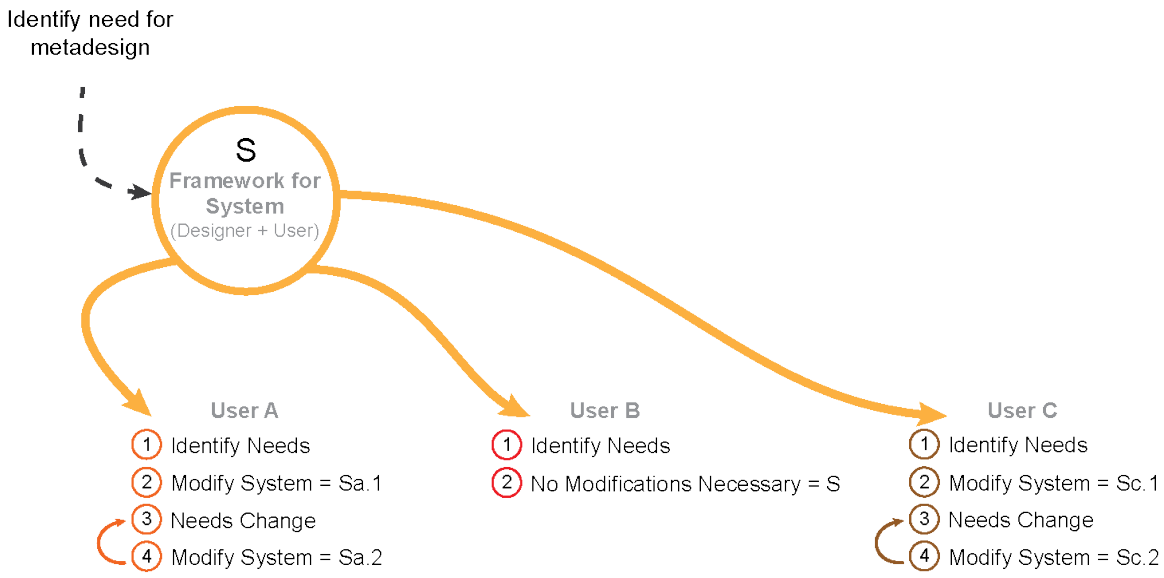


Figure 2.17 Metadesign process

This difference changes the conventional approaches to design time and use time. In the previous design methodologies, designers create static unchangeable systems during design time based on general assumptions about the system and the user.[70] During use time, users utilize those systems. If a system does not include specific functions that the user needs, the user must wait until the system is redesigned or find a different system that fits their needs.[71] Metadesign solves this fundamental problem by empowering users to modify the system to fit their needs during use time.

The adaptability of Metadesign is attractive. It provides the foundation for social creativity by incorporating the knowledge from a variety of perspectives and backgrounds.[72] The end product will better serve the user.[73] It helps to frame the discussion of design to include the, "invention and design of cultures in which humans can express themselves

70. Gerhard Fischer and Elisa Giaccardi, "Meta-Design: A Framework, 432.

71. Ibid, 432.

72. Ibid, 448.

73. Ibid, 438.

and engage in personally meaningful activities."[74] A negative concern must be addressed; which is, that not every user desires to be a designer, yet alone a life long designer.[75] Although the case for

> *"The users range from passive consumers to meta-designers."*

Figure 2.18 Text Quote

incorporating end-users as designers throughout the life of a system is a strong one, the system should still accommodate users who do not intend to further modify the system. The system should be flexible enough that a passive consumer may still use it, and at the same time the system should not be so simplistic that users who wish to change the system are restrained in their desires.[76]

Fischer and Giaccardi identify various user types that a system should equally accommodate. The users range from passive consumers to meta-designers (see figure 2.19 - The Consumer/Designer Spectrum).[77] Compared to conventional design

74. Gerhard Fischer and Elisa Giaccardi, "Meta-Design: A Framework, 439.

75. Gerhard Fischer and Eric Scharff, "Meta-Design - Design for Designers."

76. Ibid

77. Gerhard Fischer and Elisa Giaccardi, "Meta-Design: A Framework, 433.

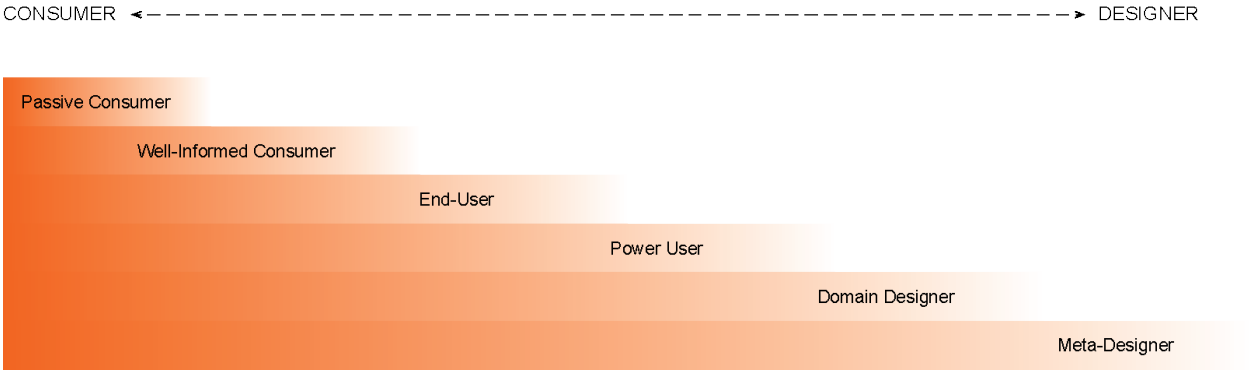


Figure 2.19 The Consumer/Designer Spectrum

methodologies where an actual system or product is being created, the designers of Metadesign are instead designing a framework which allows end-users to create their own system or product.

Piecing together the various evolutions, uses, and understandings of Metadesign, Fischer and Giaccardi summarize Metadesign as encompassing three levels of design: designing design, designing together, and designing the "in-between."[78]

The first level, designing design, refers to designing the framework which allows users to further design a system.[79] The most important and most difficult tasks at this level are predicting user's, "needs, tasks, situations, and behaviors," and more importantly using these predictions to inform the creation of a system that will in the future be modifiable.[80]

The second level, designing together, looks closely at the methods by which users and designers collaborate during *design time* as well as *use time.*[81] At the most basic understanding the second level uses participatory design ideas with an important difference: user participation extends beyond *design time* into *use time*.[82]

The third level, designing the "in-between," involves the continual modification of systems by various users who collectively add to a greater body of knowledge that can, "support existing social networks and to shape new ones."[83] It focuses on the relationships between people and their organizational structure. In this level both the designer and user are capable of affecting and being affected.[84]

78. Gerhard Fischer and Elisa Giaccardi, "Meta-Design: A Framework, 438.

79. Ibid, 448.

80. Ibid, 448.

81. Ibid, 448.

82. Ibid, 438.

83. Ibid, 448.

84. Ibid, 448.

Key Characteristics of Metadesign:

- must be flexible and evolve because they cannot be completely designed prior to use.
- must evolve to some extent at the hands of the users.
- must be designed for evolution.[85]

85.Gerhard Fischer and Elisa Giaccardi, “Meta-Design: A Framework, 438.

2.3.1 Dexia Tower: Case Study

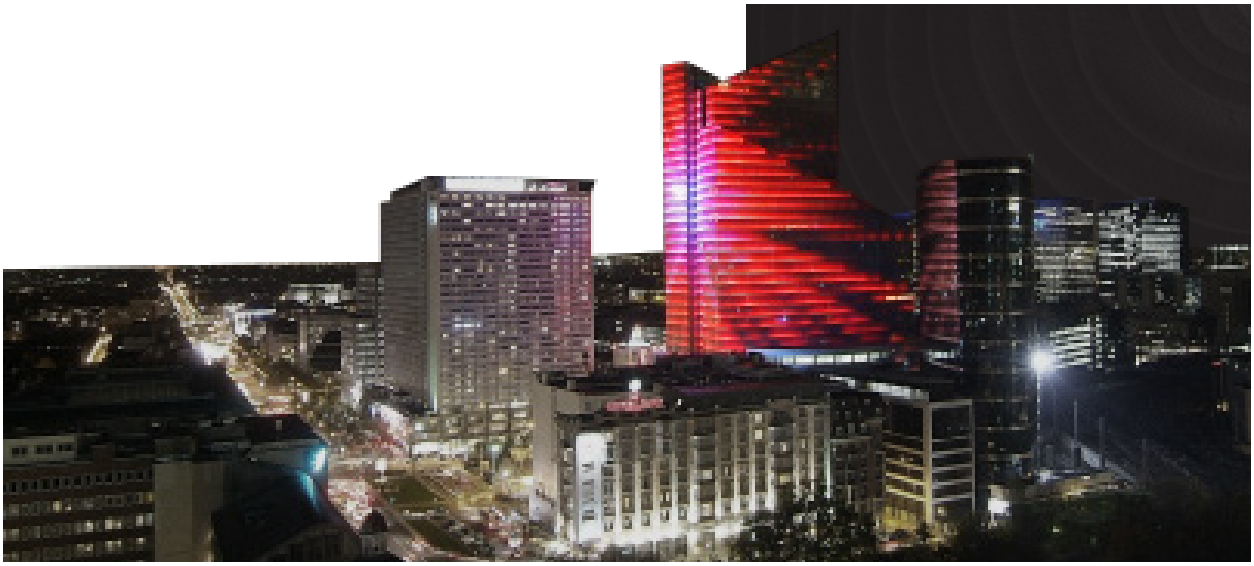


Figure 2.20 Artist Arto’s Light Display at Dexia Tower

With it’s LED decorated facade, the Dexia Tower in Brussels is a design that is meant to engage the general public. Designed by lab-au, each window holds dozens of LED lights.[86] With 6,000 windows the building contains a total of 72,000 LEDs.[87]

86. Inhabitat: Design will save the World, “Dexia Towers’ 72,000 Rainbow LEDs Light up to Show Tomorrow’s Weather,” Last modified July 14, 2010, http://inhabitat.com/dexia-towers-light-up-with-72000-leds-to-show-tomorrows-weather/.

87. Ibid.

Lab-au designed a building facade that could be used as a canvas for light exhibits. Artists create lighting setups that tie into the building's facade to display variations of light schemes. These schemes range from pure art to displaying information.[88] Figure 2.11 shows Artist Arto's light display on the Dexia Tower canvas.[89] Figure 2.12 at the other end of the spectrum, shows the Dexia Tower used to display the time of day. Other artists have created systems where the facade displays outdoor temperatures and images that celebrate the 100 year anniversary of the Olympic Games in Brussels.

One of the most creative exhibits implemented a second level of Metadesign. The public created designs on the facade, through a touch screen interface. Users created variations of shapes and colors that were immediately transposed onto the facade (see figure 2.13 and 2.14). Dexia Tower is an example where the design team implored Metadesign ideas to allow the design of the facade to be controlled by artists.

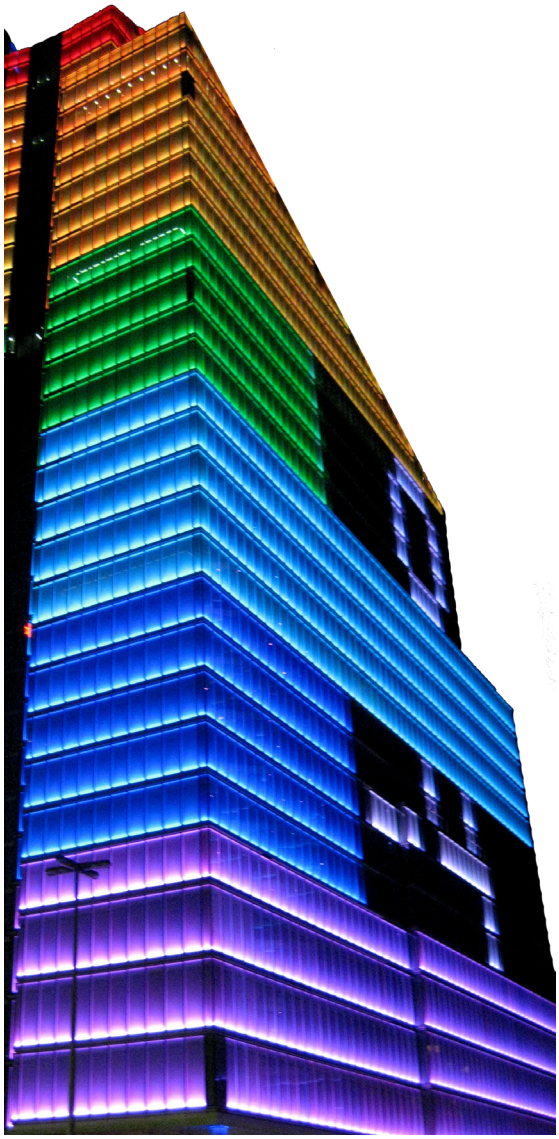


Figure 2.21 Time Exhibit at Dexia Tower

88. Creative Review. "Dexia Tower and the light fantastic." Last modified December 3, 2007. http://www.creativereview.co.uk/cr-blog/2007/december/dexia-tower-and-the-light-fantastic.

89. Ibid.

Figure 2.22 Dexia Tower touch screen control 1

Figure 2.23 Dexia Tower Touch Screen Control 2

2.4 Rietveld Schröder House - Case Study

The Rietveld Schröder house is famously known for many qualities. One of these qualities was groundbreaking idea of transformable spaces. Throughout history, the house was never categorized as an example of Metadesign. Because of the progressive shift in societal values and ideas during the that time period, the house was more closely associated to Modernity.[90] Although the house appears to be a clear example of Metadesign, it is actually on of the earliest examples of User-Centered, Participatory, and Metadesign.

The house was originally designed by architect Gerrit Rietveld alongside Truus Schröder-Schräder, whom the house was intended for. The ideas that drove the design of the house did not formulate over a few simple meetings with Rietveld and Mrs. Schröder. The wants

90. Paul Overy, *The Rietveld Schröder House* (MIT Press, 1988) 12.

and needs of Mrs. Schröder stem back to her upbringing as a child followed by a lifestyle that accompanied her marriage.

Truus Schröder-Schräder was born in 1988 on the east side of Holland.[91] Growing up in a simple working class Catholic family, Truus' father remarried shortly after her mother died.[92] After moving a few times, Truus was sent to a convent boarding school in Amersfoot and upon graduating she trained as a pharmacist eventually moving to England where she lived with a Catholic family.[93] In 1911 Truus married a lawyer with a similar Catholic background.[94] Different from Truus, her husband F.A.C. Schröder grew up in a wealthy family.[95] Adopting her husbands, "prosperous Dutch middle class," style of living, Truus became unhappy living in this manner.[96] "She describes her dissatisfaction for the house as a symptom of her discontent with the bourgeois life-style that she shared with her husband."[97]

To relieve some of his wife's discontent, F.A.C. allowed her to modify one of the rooms in their apartment to her own liking. Truus hired Gerrit Rietveld to redesign the interior of her room. She tasked him with, "redesigning the interior as a way of restructuring the life that could be led within the interior."[98] Mrs. Schröder envisioned a space stripped away from the ostentatious qualities that characterized the rest of the house.[99] Rietveld designed a simple space barren of luxurious decor.[100] Every element built into the room had a multi-functional purpose.[101] The ideas that guided the remodeled room would reappear in the design of the Mrs. Schröder's house.

91. Paul Overy, 21.
92. Ibid, 21.
93. Ibid, 21.
94. Ibid, 21.
95. Ibid, 21.
96. Ibid, 21
97. Ibid, 23.
98. Ibid, 21
99. Ibid, 21-23.
100. Ibid, 21-22.
101. Ibid, 21.

Figure 2.24 Rietveld Schröder House

In 1923, Mrs. Schröder's husband past away, and Truus decided to live in a more appropriate house with her three children.[102] Building on the life style that Rietveld helped to create in her previous apartment, the two set off to design Mrs. Schröder's new home. For Mrs. Schröder this house was to be a, "statement of intent, a stance taken; a declaration of how an independent modern woman intended to live her life." As much of an artistic statement as the house was, the true form of art was revealed within the reduced living conditions.[103]

Rietveld and Mrs. Schröder began designing the house, driven mainly by the discontent of her previous living experience. She desired a space where everything was fundamentally real or full or purpose. This is most obviously seen in the lack of ornamentation that mimicked nature, "by banishing conventional decorative features and ornament from

102. Paul Overy, 22.

103. Ibid, 22.

the exterior and interior."[104] The clean exterior exemplifies the minimalist qualities (see figure 2.24) and the blurred boundaries between interior and exterior can be seen at the ground floor corner windows. These large corner windows completely open out causing the boundary of the house to disappear allowing the garden to feel as a part of the interior (see figures 2.25 - 2.26).

Despite the many detailed nuances of the house that demonstrate unostentatious modernist qualities, the most prominent feature that was derived from Mrs. Schröder's early living experiences are the movable wall partitions. When it came time to design the plans there were three ideas that guided the direction of the house. Throughout her marriage there were three occasions where she left because she did not agree with the way their children were being raised.[105] Because of this she wanted a space that allowed the family to feel more connected. From very early on, it was never an intention that the house was to be rather large. She had always felt uncomfortable in a her previous apartment because of it's immense size.[106]

104. Paul Overy, 27.

105. Ibid, 56.

106. Bertus Mulder, I. van Zijl, and G.T. Rietveld. *The Rietveld Schroder House*. (Princeton Architectural Press, 1999) 6.

Figure 2.25 Rietveld Schröder House Interior Windows

Figure 2.26 Rietveld Schröder House Exterior Windows

Despite the smaller size she had grown accustomed to the room that Rietveld remodeled for her most specifically the multi functional aspects.

The first design iteration Rietveld developed took and outside-in approach, which was pretty common by most architects.[107] The first sketch was not what Mrs. Schröder's liking and therefore she decided to give closer design guidance.[108] Throughout every step Mrs. Schröder designed side by side with Rietveld.[109] Although Mrs. Schröder was not creating any drawings or physical models she was directing the overall progress of the project.

Working more collaboratively, the two of them began working on the interior layout of the house. Starting with the upper floor bedrooms and moving on to the kitchen and eventually the living room, the entire life style that Mrs. Schröder wanted to live quickly emerged throughout the design. [110] In discussing the way she wanted to live, the idea of transformable spaces became major design solution when she questioned the idea of movable walls that separated the children's bedrooms.[111] Although Rietveld was not fond of the idea at first, soon many elements were designed with various options. For example counters could be turned into work benches or collapsed to make the room bigger.[112]

At the time the house was built many of the ideas may have seemed very simple but they were nonetheless progressive. Guided by her previous experiences Mrs. Schröder wanted a house that would allow her to determine the type of life she wanted to live. With the capability of multi functional spaces Mrs. Schröder was able to direct her own life.

107. Bertus Mulder, 6.
108. Ibid, 6.
109. Paul Overy, 56.
110. Bertus Mulder, 8.
111. Paul Overy, 56.
112. Ibid, 57.

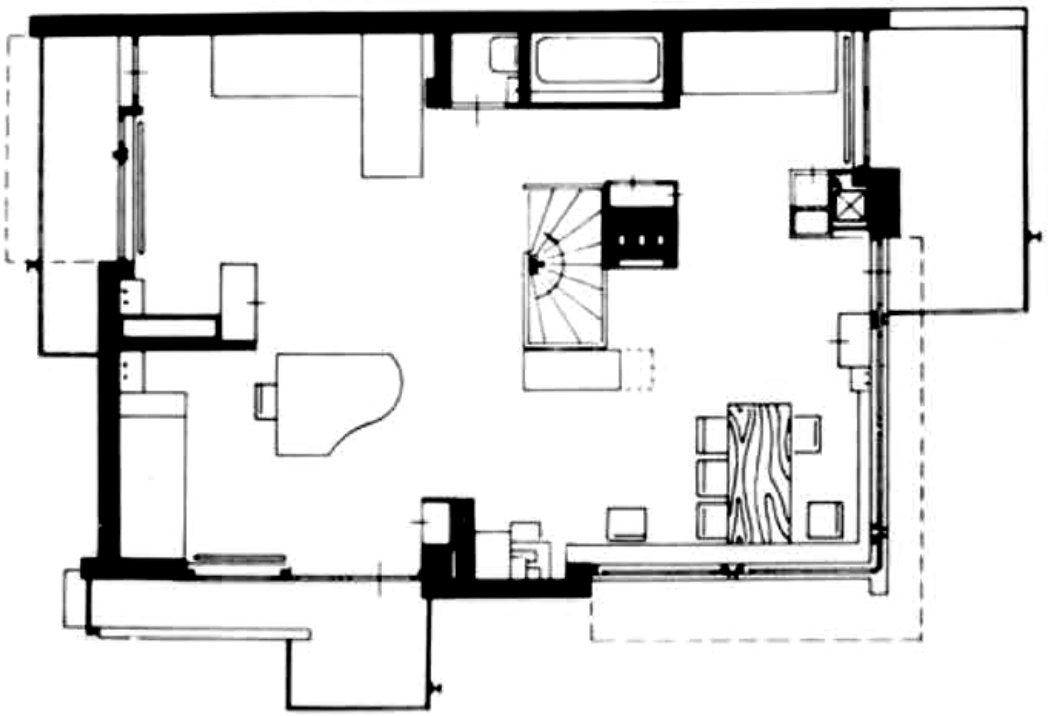


Figure 2.27 Rietveld Schröder House Floor Plan - Open

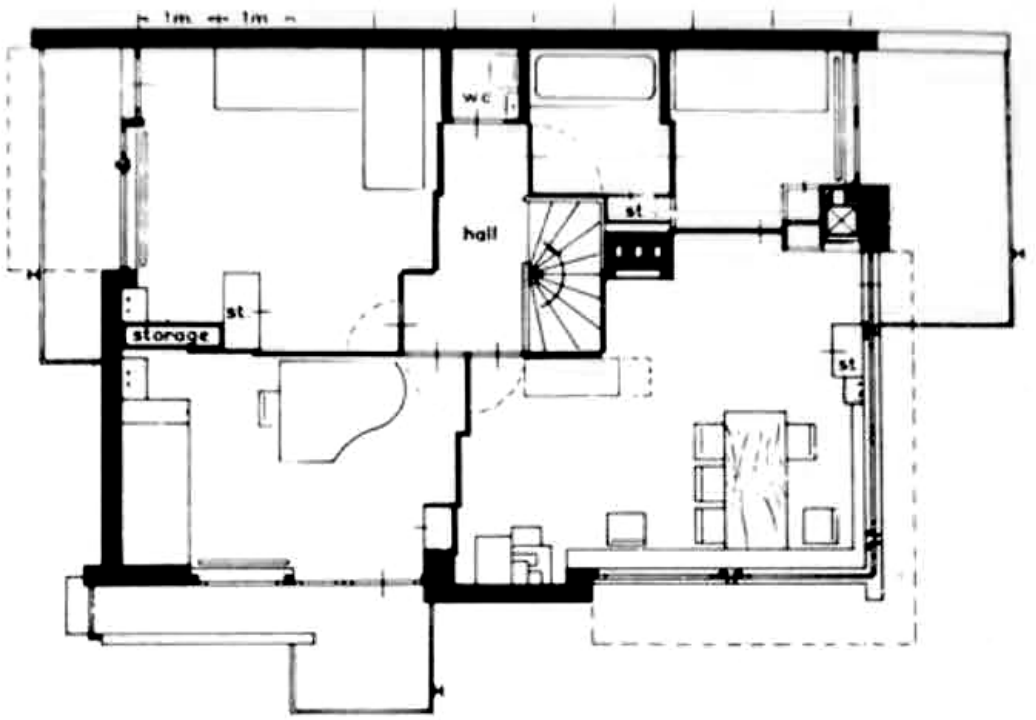


Figure 2.28 Rietveld Schröder House Floor Plan - Closed

2.5 Service Design

Like the previous design thinkings, there is no one clear definition of Service Design. In the most general sense, Service Design is a design of systems and processes that strive to deliver a holistic service to the user.[113] In many cases the outcome of Service Design ends up being an experience closely tied to the product or service being provided. Similar to the ideas of *Branding,* Service designers believe that when a person buys a product, they are not just buying the item, but a lifestyle, idea, way of thinking, or even quality of service inexplicably linked to the product, in this case an architectural design. Service Design is the method of creating the unique experiences tied to these ideas.

> "*the outcome ends up being an experience closely tied to the product or service being provided*"

Figure 2.29 Text Quote

In a book entitled, "This is Service Design Thinking, " a group of educators and design practitioners invested a collection knowledge and experience to help further define the methodology behind Service Design. Marc Stickdorn, a co-author of the book begins with an explanation of the five characteristics that should be considered in Service Design. These are User-centered, Co-creative, Sequencing, Evidencing, and Holistic.[114]

The first two principles User-Centered and Co-Creative deal with the first two design thinkings presented, User-Centered and Participatory Design. [115] At a basic level of understanding, in order to design a service for users, the designer

113. Marc Stickdorn and Jakob Schneider, *This is Design Thinking.* Amsterdam: (BIS Publishers, 2011) 23-25.

114. Marc Stickdorn and Jakob Schneider, *This is Design Thinking*, 26.

115. Ibid, 27-31.

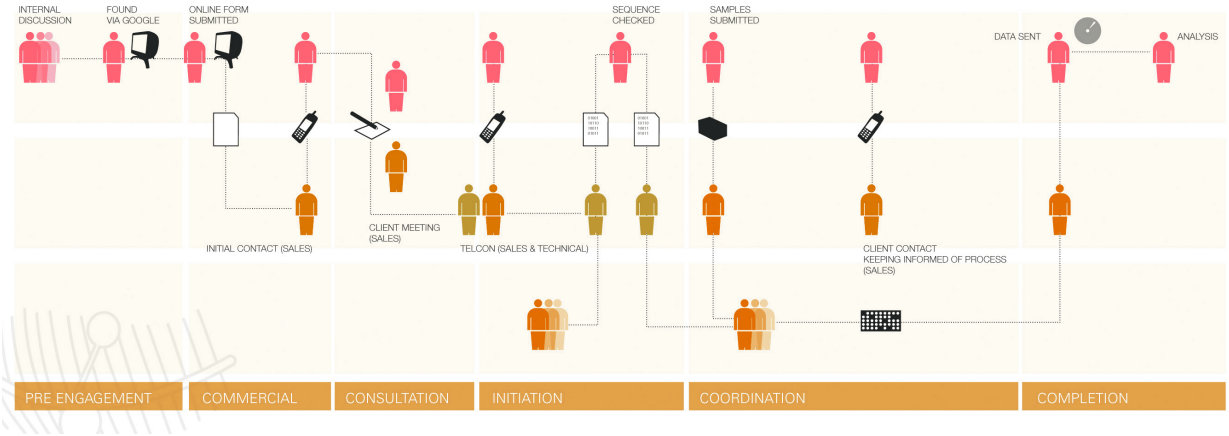


Figure 2.30 Sequencing and Touchpoints diagram

must first understand and involve the users into the design process.[116]

The third principle, Sequencing, is a design of progression and in essence story telling. Figure 2.30 gives one example of a sequencing diagram. An effective method of sequencing navigates the user through a service without becoming too bored or too stressed.[117] An important part of sequencing is an idea of touchpoints. Touchpoints are an important tool that allow the user to be closely tied to the service. They can occur human-human, human-machine, and machine-machine.[118] Every service sequencing follows a three-step transition: pre-service, actual service, and post-service. Touchpoints are an integral component of *Aulani*, *Ko`olina* in *O`ahu Hawai`i*. A pre-service touchpoint is the user watching the commercials at home in California. Other pre-service touchpoints include the booking experience, reservation confirmations, and friendly reminders at specific intervals, including a list of items to pack for first time visitors, or lists of nearby attractions. During the actual service, the first touchpoint occurs when guests arrive for

116. Ibid, 27-31.

117. Marc Stickdorn and Jakob Schneider, *This is Design*, 31-33.

118. Marc Stickdorn and Jakob Schneider, *This is Design*, 33.

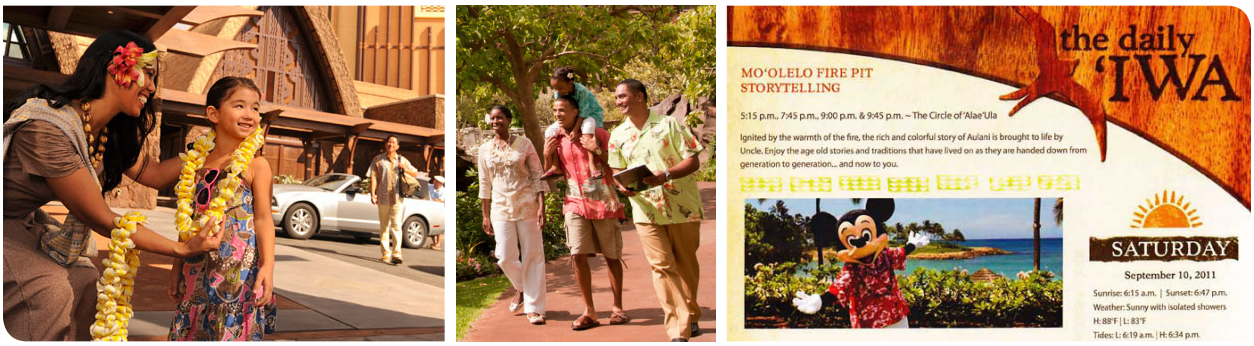


Figure 2.31 Disney Aulani Touchpoints

check-in where they are greeted with a lei (see figure 2.31). Bell hops pack the bags of every visitor, who are escorted to the check-in desk. The sequencing continues as the visitors receive a quick personal tour of the hotel while their bags await them in their room. Each morning guests are given a news bulletin that provides general information about the attractions and events taking place throughout the day. At the time of departure guest are required to check-out by a certain time but are accommodated with community rooms that allow them to enjoy the attractions until they must depart. Upon checking out guests are offered a post-service touchpoint where they are invited to join the Disney Vacation Club. This club allows guests to receive offers, reminders, savings, and many other specials exclusive to club members. As seen through Disney *Aulani*, touchpoints are an impactful tool that should be "orchestrated to achieve a pleasant rhythm, ensuring a climactic progress of the customer's mood and communicating the story inherently to the service through each touchpoint."[119]

The fourth principle, evidencing, is explained as making the, "intangible tangible."[120] The proper design of service evidencing can lead to a prolonged experience of a service far into the post-service.[121] The example of the

119. Marc Stickdorn and Jakob Schneider, *This is Design*, 33.

120. Ibid, 36.

121. Marc Stickdorn and Jakob Schneider, *This is Design*, 36.

Disney Vacation Club, is one example of evidencing. Upon signing up guests will receive periodic offers and emails for other similar vacation packages. When implemented correctly these touchpoints can remind the guests of their experience and encourage them to return. A more concrete example of evidencing is through the use of character photos. Around the resort at various times, photographers take pictures of guests with various Disney characters. The character visits are free, and photos are offered for purchase online. The purchase may be made at anytime within a one year period, allowing guests to revisit the experience well after they have departed.

> *"Through the use of sequencing and touchpoints an experience can be created that closely links the user to the design."*

Figure 2.32 Text Quote

The final principle identifies Service Design as a holistic approach. One of the core values of Service Design is that it is all encompassing. From a realistic standpoint, however, it is impossible to consider everything that could influence the design. There should be a respect for considering the larger picture and how this consideration gets implemented should be carefully thought. For example, with respect to sequencing, a user's journey will never be adhered to one hundred percent of the time. There will be sub-journeys that link off of the main path and to the level of detail that these sub-journeys are designed really depends on the service.

This brief summary of Service Design highlights a systematic approach to designing an intangible product or experience. Although there are many variations of Service Design processes, these guidelines explain two key components of Service Design. Through the use of sequencing and touchpoints an experience can be created that closely links the user to the design.

2.6 Conclusions

An architectural design process nested in biomimcry leads to a design thinking, extending beyond the methodologies of User-Centered, Participatory, Meta-, and Service Designs. The observation of a tree's growth rings and the connection of those observations to specific experiences suggests that the design of buildings should be influenced by the significant experiences of the users. The design viewpoints presented here do not, however, directly focus on experiential design. By focusing on the user in this newly proposed manner, the architect synthesizes the best of user-centered, participatory, meta, and service design methodologies. The result is a design process that addresses functional and sensorial elements through user experiences. The analysis of several significant case studies lays the foundation for understanding the key elements that support this new design methodology.

> *"the users must want to be involved during the design process"*

Figure 2.33 Text Quote

After reviewing the case studies, two fundamental questions arise which if not addressed, could potentially weaken the development of the process. First, what is the rationale for the use of a specific design process? Second, since the rationale must come from the user, what does the user need?

With respect to the rationale for implementing any of the design thinkings presented here, the users must want to be involved during the design process. A user's lack of interest in the design process renders any of these invalid. This is clearly demonstrated in the Vignes Blanches project. Most users do not want to be involved in a process that requires their input. If this desire is assumed, as it

was in the Vignes Blanches project, the process is undermined.

> *"The goal is to create a method that not only allows user input, but one that strengthens the bond of the user to the process."*

Figure 2.34 Text Quote

Even if users decide early in the design process that they want to be involved, their involvement must be strategically planned. Failure to plan results in users focusing on minutiae or details best left to architectural experts. The users of DR Byen criticized the design process as tedious and time-consuming, focusing on needless minutiae, such as the layout of desks.[122] For this reason many users opted out of involvement in the Vignes Blanches project. A moral from both these projects is that the architect must provide a clear focus of when the user's attention is and is not necessary.

While the inclusion of users into the design process for the projects at Vignes Blanches and DR Byen caused struggles, the design process implemented by Jeff Oberdorfer at the Boulder Creek Library succeeded for several reasons. First, the design team at Boulder Creek Library had a clear design strategy for informing users and structuring their participation. Furthermore, by adhering to the "consensus decision-making" work groups, the design team ensured that all users felt valued because every user's voice was heard and carried equal weight. Through the projects at both DR Byen and Boulder Creek Library, it is clear that workshops are an effective method of allowing the users to communicate their ideas to the design team. The workshops for the Boulder Creek project, in contrast to those for DR Byen, illustrate that the workshop technique can only move from the effective communication of ideas

122. Per Anker Jensen, "Usability of Workplaces

to effective design if the workshops are carefully planned. The users for the Boulder Creek project saw their ideas transformed into tangible design elements because the architects carefully planned the workshop content and structure.

The projects that are deemed most effective are the ones in which the user had a close relationship to the process. At DR Byen every user was not involved during the design process, however the users who had input during the design process were most responsive and most attached to the end product. The success of buildings is often measured by the responsiveness of the users to the buildings. In the case of DR Byen, the building was judged most successful by those who were involved in the process. Therefore, to ensure the success of the end product, the goal is to create a method that not only allows user input, but one that strengthens the bond of the user to the process.

A key characteristic of Participatory design, prototyping, can facilitate this. The prototyping phase of design as explained in Participatory design is simply a design tool used to communicate ideas to the design team. In the design of the Boulder Creek Library, users worked collaboratively do develop floor plans throughout the “consensus decision-making,” workshops. There was a general feeling of close attachment to the library by the users who participated in the design process, mainly because they felt a close relationship to the design. Although there is great value in allowing users to partake in conventional design activities as the users were allowed to do in Boulder Creek Library, there should be a level of precaution taken so that there is not disappointment as described by the comments of the staff at DR Byen. As a general design strategy large-scale ideas are always conceptualized. These ideas can become over romanticized early in the design process. Through design development many of these largely attractive ideas can only become realized

a : user *b* : design process *c* : building design

Transitive Relation: if *a* = *b* and *b* = *c*

then *a* = *c*

therefore: if *user* is experientially attached to *design process*

and *design process* informs successful experiential *building design*

then *user* is experientially attached to successful *building design*

Figure 2.35 Transitive Relation Diagram

in simplified forms. From the standpoint of an end-user, who does not understand the harsh realities of design, this can be disappointing. This was the case with the DR Byen users. The realities of building forced some of the large ideas to be simplified, which, in return caused the users to feel as though their ideas were neglected, leading to their detachment from the process and the end design.

A solution to this problem is to solicit user input in a different manner. Rather than utilizing users in design activities, it might be more beneficial to have the users create artifacts that communicate significant experiences that relate to the proposed building. User artifacts created through prototyping can be utilized and understood as much more than communication techniques.

Drawing from the ideas of touch points in Service design, the artifacts created throughout the design process become a threefold touch point system. First, they help the user to communicate their ideas to the designer; second, they become experiential touch points of the design process, and third, if synthesized effectively these touch points become key components of the final design. Through an effective exploration of user created artifacts, users can become experientially and emotionally attached to the design

process culminating in a close experiential attachment to the architectural design.

When the user is an integral and important component of the design process, the role of the designer becomes a major concern. In utilizing a process that is based solely around the user, the designer must take a step back and not impose his own ideals onto a project. In implementing the Vinges Blanches project, Kroll failed to accomplish this. The designer becomes a facilitator of the process and must do what the user is not trained to do: synthesize all of the ideas into a cohesive design that is personal to the user. A review of the advantages and disadvantages of User Centered and Participatory design thinkings logically points to the conclusion that the user should be involved in the design process, but not in conventional design activities. The Boulder Creek project shows that the users participation in conventional design activities can prove to be an effective method, given a strategic plan. The user group involved during the design process at Boulder Creek was an older group of adults. Because of the level of understanding of building design, a younger user group might not have been as successful. The design and architect must analyze the users and strategically determine the level of user integration early in the design process.

> *"With the an effective exploration of artifacts, users can become experientially and emotionally attached to the design process culminating in a close experiential attachment to the architectural design."*

Figure 2.36 Text Quote

The design team deliberately planned one aspect of the process at Boulder Creek. Before initiating the workshop series, the design team created a brief that was given to the workshop group. The brief detailed functional spatial requirements of the building, staffing requirements, and site conditions. This

predetermined brief set parameters for the user group's thoughts. The site analysis is one of the most important aspects of any design process; it provides designers with a first-hand experience of how site conditions will alter the design. The Boulder Creek design team had the first-hand experience conducting the site analysis; the various workshop groups responded not to a first-hand experience, but to someone else's first-hand experience. Although it is important that the designer facilitate an analysis that informs the user of site characteristics that may impact the design, the user should be involved in the core analysis.

> *"architecture can be designed as a modifiable system at the hands of a user"*

Figure 2.37 Text Quote

Spatial requirements is another area that the user should be involved in. it is important to determine the list of spaces; however in the context of design, many times it is necessary to think outside of the bounds of the given project. For example, a project at the most basic level may be a library. Given a list of predetermined spaces, the users might never find the innovative advantages of infusing programs of other design typologies, such as a computer system. The determination of the spatial requirements should be facilitated by the designer, but further defined by the user.

The core idea of Metadesign, design during use time, adds a quality that is specifically important to the core drivers of this thesis. Recalling experiences that motivate human behavior can be difficult, and predicting the influences which drive humans to have certain experiences is nearly impossible. Designing a space that is influenced solely by past experiences condemns the design to obsolescence at some point. The Dexia Tower, a product of Metadesign, is an example of how architecture can be designed as a modifiable system at the hands of a user within the framework of the base system. In other words, the general public can

modify the design of the facade, but, the design must remain within the lighting parameters of the original design. This brings to light an important issue with regard to the base design and to what extent should the user be allowed to modify. At the Dexia Tower, artists were allowed to create systems that showcased different configurations of light at different times of the day, but, the artists were not allowed to change the types of lights installed on the building. The base system is highly influential in determining the framework for how the design can be modified.

Each of the case studies help to understand various aspects that will determine a unique design methodology. The Rietveld Schröder house is the one example that hints at the possible outcome of a design that incorporates the user and their experiences. Although the process that began the design of the Rietveld Schröder house was fundamentally user-centered, by the end it was also a bit participatory and metadesign as well. The terms user-centered, participatory, and metadesign were nowhere near existence during the time Rietveld and Schröder designed the house, but based on principle, this project can easily be classified under any one of these design thinkings.

Truus Schröder lived a life full of meaningless decor that fulfilled no purpose other than luxurious exhibition. It is this main experience that drove her to want to live a simpler more functional life. Rietveld was unable to successfully interpret these experiences into a workable design and therefore Mrs. Schröder decided to insert herself into the design process ultimately aiding Rietveld. This one small problem in their design process points out that a participatory approach to communicating design ideas is much more effective than a user-centered approach.

With the implementation of movable wall partitions, it was Mrs. Schröder‘s desire to have a space that could be multi functional. She wanted

a space that could allow the children to have private division but also communal gathering. While the Rietveld Schröder house has the ability of transforming, the evolution of the house is not guided by the growing experiences of the user. The modifications are solely intended for functional needs by the users. The decision to have movable walls was based on a previous experience, but it was the personal value of Mrs. Schröder that caused her desire. Furthermore, the modifications do not change the experiential quality of the house. Recalling the critique of Libeskind's Jewish museum, the main intent of incorporating metadesign in this new methodology is to create meaningful sensorial and experiential spaces. The metadesign qualities of this methodology aims at doing this by drawing parallels between the future experiences of the user and the evolution of the design.

2.5.1 Hypothesis

The conclusions described here lay the foundation in formulating a hypothesis for a new design methodology: an experiential design that is meaningful to a user, must involve that user in a design process that is influenced by the user's experiences; furthermore, to ensure that the design remains true to the user, it must evolve in response to the changing experiences of the user. The ultimate goal of this thesis is supporting this hypothesis through the design of three single family homes.

chapter 3. developing a new design method

In a typical project, the Architect most likely claims one hundred percent of the design responsibilities throughout the project. Chapter two examines design thinkings that abandon to varying degrees this approach, by allowing users to assume design responsibilities as illustrated in figure 3.1. Through examination of the shift in design responsibilities there is an underlying question regarding the necessity of an architect.

Completely disregarding the amount of design and practical experience that an architect has, there are many other duties and services that an architect provides to an owner or client. Even though the specific responsibilities might vary slightly from project to project, the architect has an obligation to not just design, but to also, "administer the project, research issues, consider alternatives, issue reports, project schedules, budgets, and assist in governmental filings." [100]

100. Paul Segal, *Professional Practice: A Guide to Turning Designs into Buildings (*New York: Norton & Company, 2006) 49 - 50.

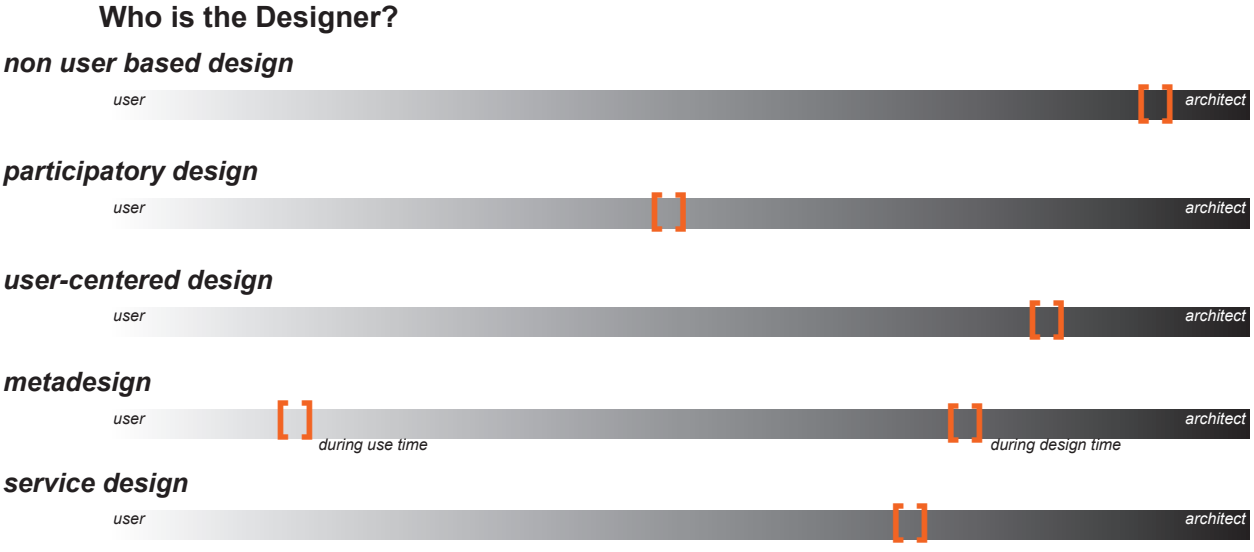


Figure 3.1 The Shift of Design Responsibilities

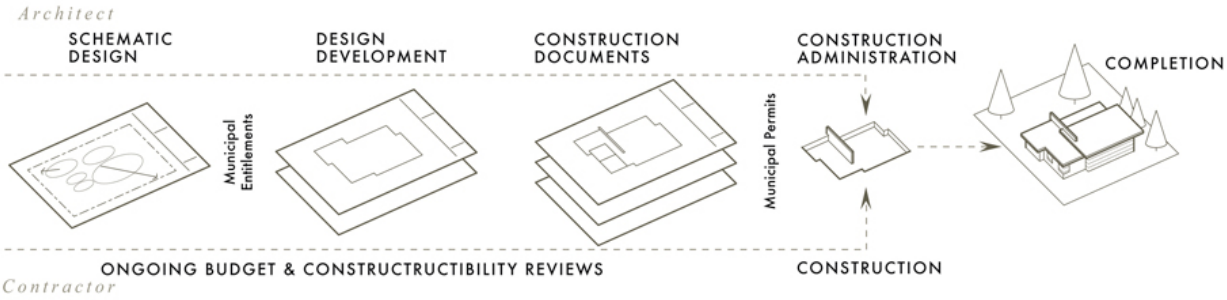


Figure 3.2 Architects Basic Services

The creation of a building is typically administered through one of two similar but distinct models, Design-Bid-Build or Design-Build. Within each model there are two separate focuses, the design and the construction. The distinction between the two models occurs during the construction phases. In the Design-Bid-Build model, the Architect or Designer, and the contractor are two separate entities. In the Design-Build model the Architect and the contractor are the same.

The American Institute of Architects (AIA) has developed a best practices of design services for both models. In the Design-Bid-Build model, which most Architects follow, there are five basic services of an architect: Schematic Design, Design Development, Construction Documents, Bidding & Negotiation, and Construction Administration.

Through whichever model is followed there is a point in the process where the design of the building comes to completion and there is a heavy focus on the construction of the building. It is at this point that the architect and not the user becomes critically crucial to the project.

3.1 Architects Basic Services

In his book “Professional Practice: A Guide to Turning Designs into Buildings,” Paul Segal describes the five basic services of an architect: Schematic Design, Design Development, Construction Documents, Bidding & Negotiation, and Construction Administration. Outlined in these five basic services are the design and construction tasks that are administered by the architect. The core design of the building is determined throughout the first two phases of the five basic services.

> *“contextual site analysis allows the designer to decode information that is crucial for a successful building design ”*

Figure 3.3 Text Quote

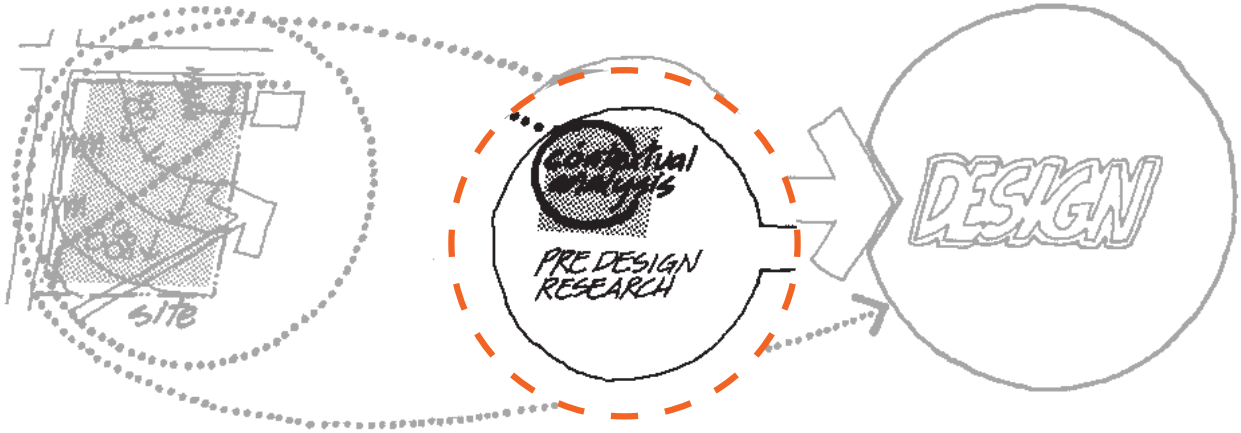
There are occasions where architects are requested to conduct additional services; feasibility studies, master planning studies, cultural impact assessments, and master planning are just a few of these services.

One of the most common additional services conducted is the site analysis. The site analysis can be as simple as determining the physical conditions of the site, but in most instances it is fairly complex and may include location, culture, physical nature, environment, demographics, transportation, views, future changes, historical importance, and connectivity among many other issues that could be important in furthering the development of a building design . Edward T. White describes site analysis as a contextual analysis whose role is, “informing us about our site prior to beginning our design concepts so that our early thinking about our building can incorporate meaningful responses to external conditions.”[101] A

101. Edward T. White, *Site Analysis: Diagramming Information for Architectural Design (*Tucson: Architectural Media Publishers, 1983) 6.

successful contextual site analysis allows the designer to decode information that is crucial for a successful building design.

The design of the building can move forward only after acquisition of the site analysis



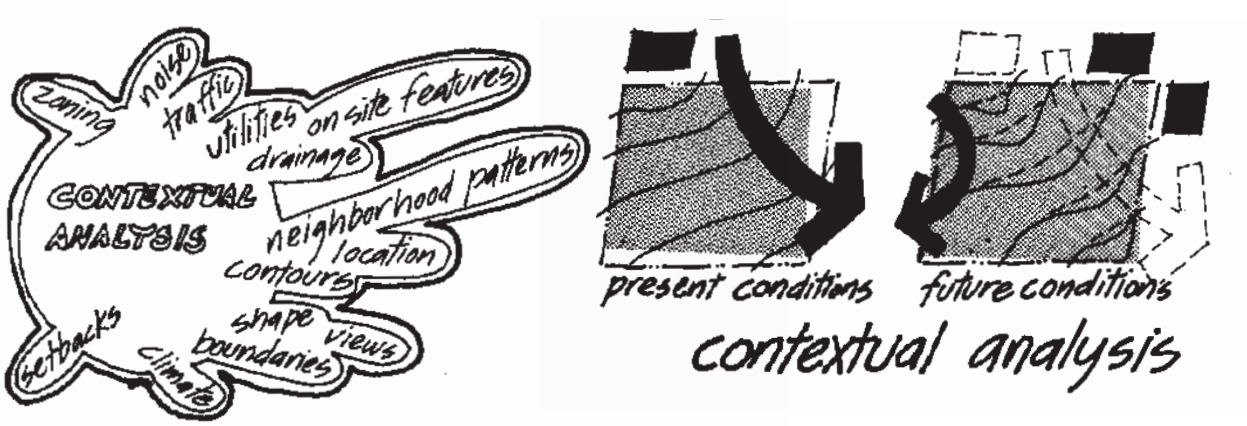
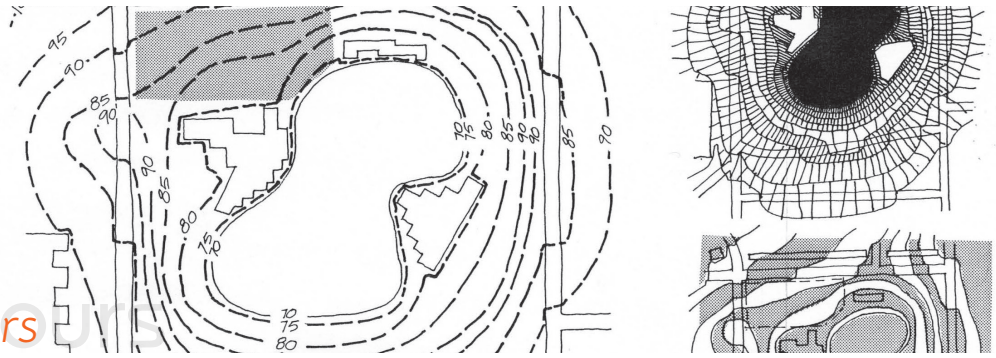
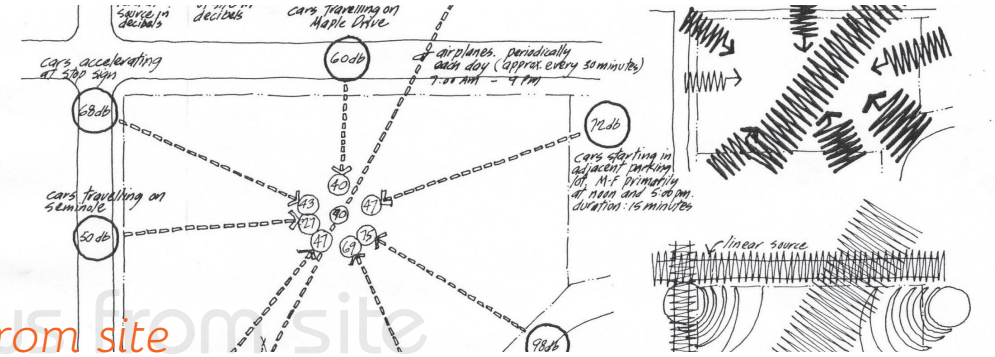


Figure 3.4 Contextual Analysis

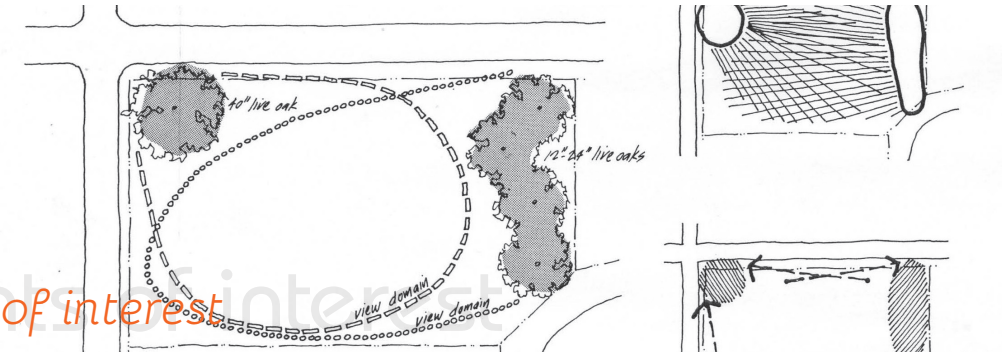
contours



views from site



points of interest



views to site

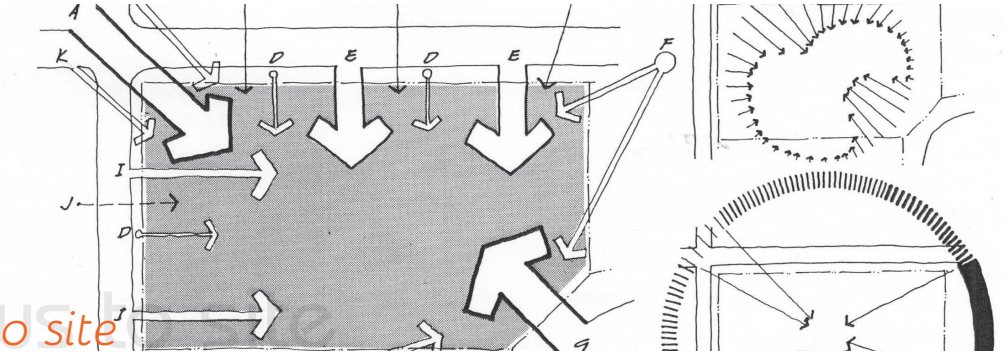


Figure 3.5 Conventional Site Analysis Diagrams

3.2 Framework for Design Method

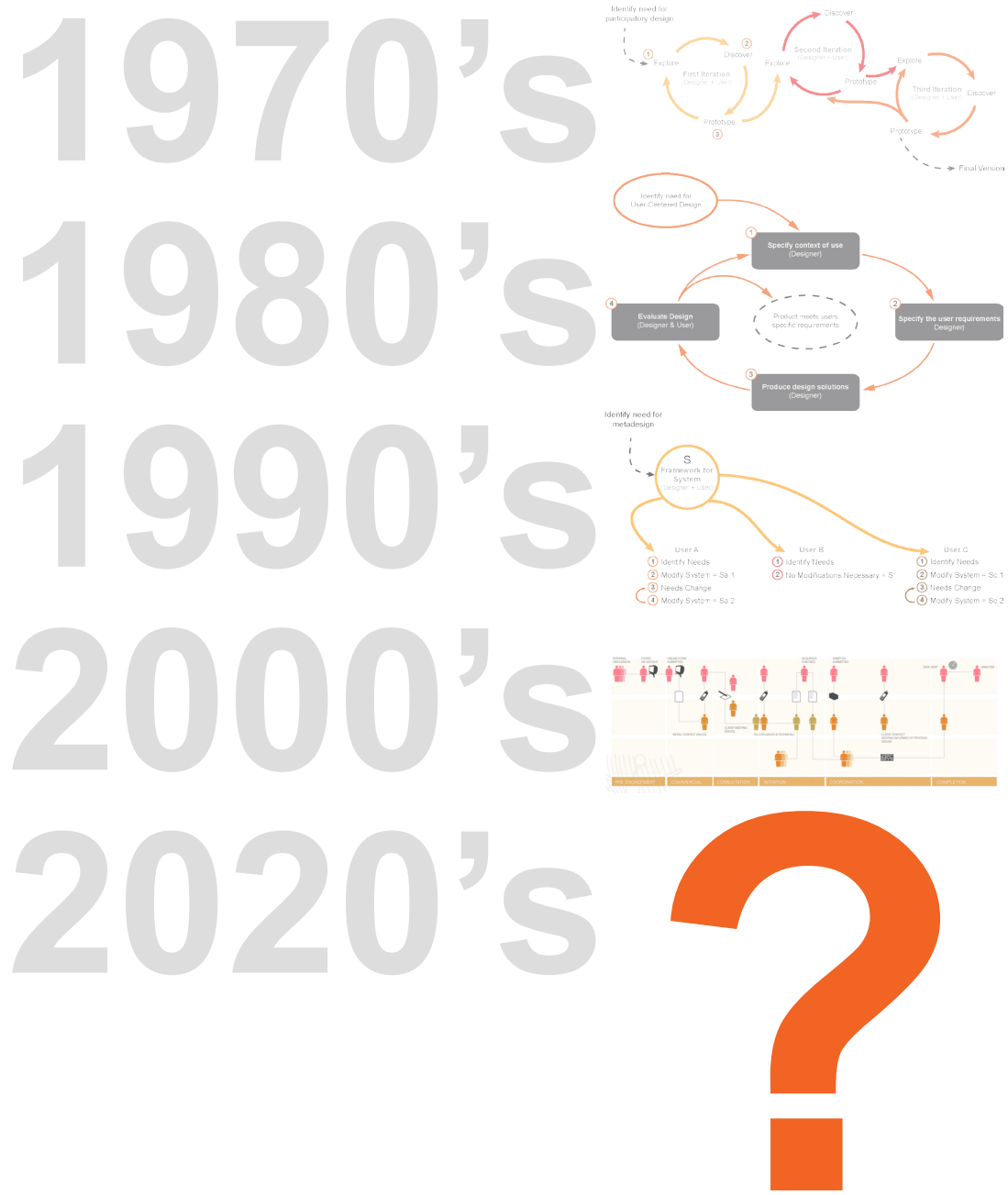


Figure 3.6 The Next Design Thinking

Determining the framework for a new design methodology that involves the user is innately an evolutionary development. It begins with first dissecting and understanding the current process for which a building is designed. As mentioned previously this occurs during the schematic and design development phases. Examining these phases serves as base for understanding a basic process. Utilizing the analysis and conclusions from chapter two, the basic process is further developed to allow for a user influenced design process.

3.2.1 Schematic Design

The first phase of design, schematic design is intended to define the project. The main purpose at this phase is to develop the driving vision and concept of the project. This begins with a consultation between architect and client to develop an architectural programme. The programme typically consists of a project definition, spatial requirements, usage, and any special condition requirements.

> *"concepts are developed which suggest how the vision is transposed into architectural form"*

Figure 3.7 Text Quote

During the schematic phase, concepts are developed which suggest how the vision is transposed into architectural form. The earliest ideas or sketches during the schematic design will have a unique focus. There may even be various iterations of each idea. Although each sketch may not depict a building in its entirety, collectively the sketches begin to illustrate the main ideas of the building's character. Throughout this design phase all of the ideas presented will be re-evaluated in connection with the vision, programme, and context of the site. The schematic design will culminate with a few variations of the first building design. Represented through schematic floor plans, elevations, or perspective

images, the drawings typically clearly illustrate the driving concepts in relation to the vision (see figure 3.8 - 3.9).

This phase is typically achieved after various meetings between the architect and the client. During each meeting the architect presents the concepts to the clients followed by client feedback. It is important that an open dialogue be maintained between the architect and the client so that the ideas of the architect are understood by the client , but also so that the architect can discern whether or not the client is receptive to the design. With an effective method of communication the schematic design phase can be the most exciting for a client. It is the first time they have the opportunity to see what their building will look like.

During the Schematic Design phase, the main focus is to frame the project and translate the driving vision into a building form. The goal of the Design Development phase is to take the large scale ideas and concepts from schematic design and turn them into viable building options. Materiality and cost are two of the biggest topics that are constantly under evaluation during this phase.

In many cases the architect

Figure 3.8 Concept Development

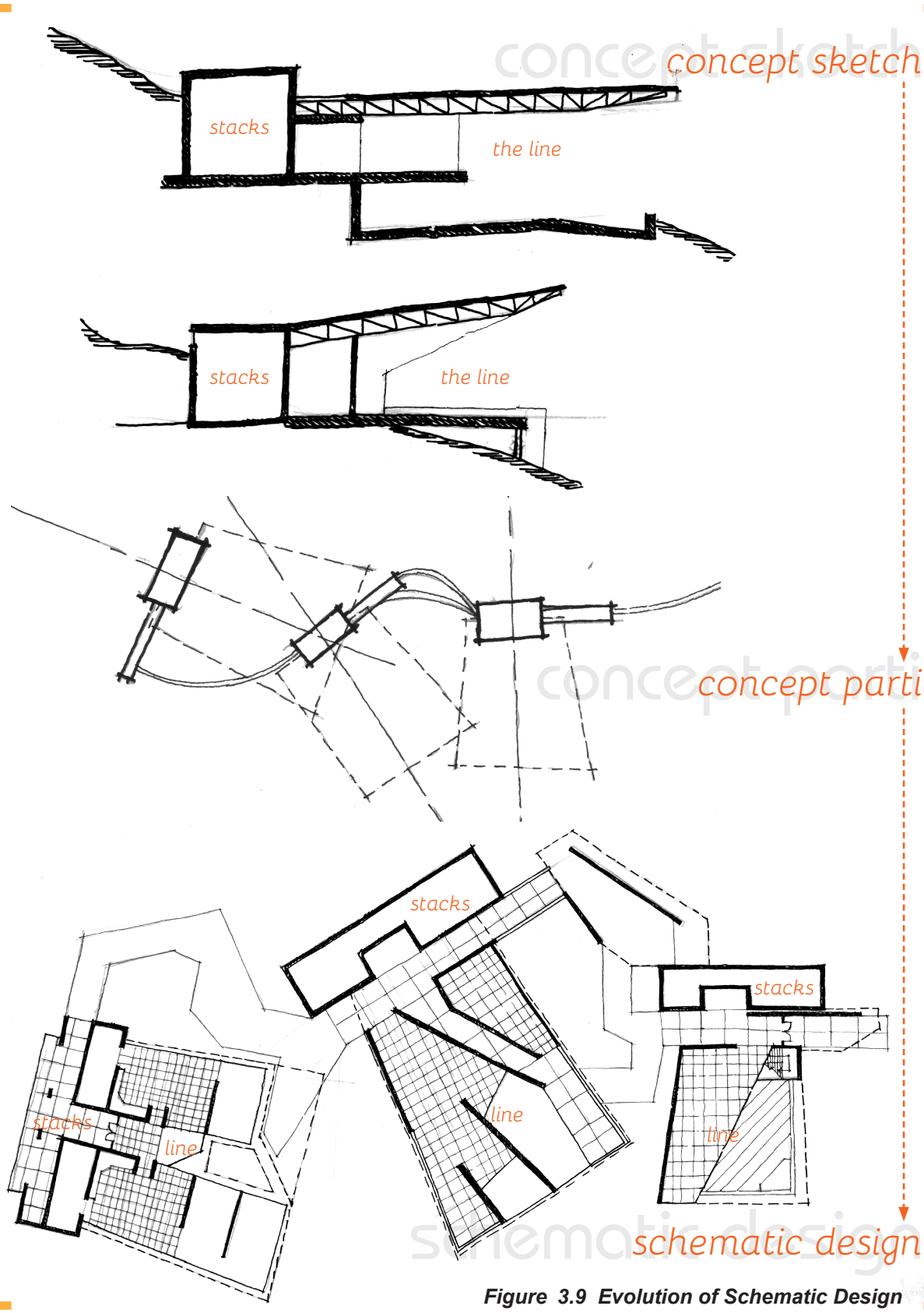


Figure 3.9 Evolution of Schematic Design

3.2.2 Design Development

will discover that some of the ideas determined in schematic design may not be viable building options. In the example of the Plant, it was the original intent of the schematic design to have a building that was completely open, having very few fully enclosed spaces. Through research during Design Development, the design team determined that because of security and energy savings reasons, most of the spaces had to be enclosed. In response to these issues spaces were moved around so that the building would have the illusion of being fully unenclosed. Throughout the Design Development phase many issues will arise and the architect must then prioritize and determine which ideas are most important.

Throughout this phase many questions are brought forth, and as soon as one question is answered another is discovered. As every component in the building is determined for its viability, the architect must also think about how every component will affect and be affected by other conjoining building components.

Looking again at the Plant this idea of having an important conceptual idea cause numerous unforeseen issues was most eminent in the algae roof design. Early on in the project the client decided it was important to have the building produce more energy than it used, and they wanted the building to showcase emerging sustainable technologies. In schematic design the design team came up with an idea of having the building harvest algae to produce bio-fuel. However, rather than just having a space designed for harvesting algae, the team conceptualized an idea of having the harvested algae be an aesthetic building component. During schematic design the idea of having an algae roof was formulated. This idea quickly rose to the top of the priority list because it responded to many of the clients wants and needs as

well as vision for the project.

Rigorously trying to maintain the nature of the algae roof idea, there were many concerns and issues that arose. First the algae system needs to have a continuous water cycle. Rather than just having water be fed right into the algae system, the team created a solution that ran water pipes throughout a concrete wall to help passively cool the interior space.

> *"The Design Development phase transpires the large conceptual ideas into a tangible building."*

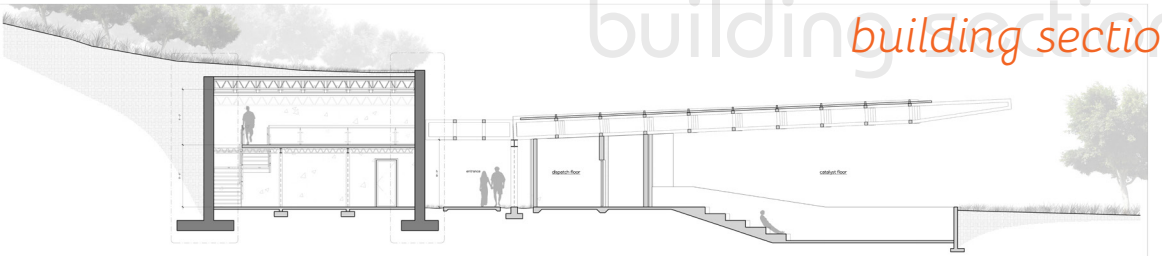
The roof area for the algae assembly is a rather large surface area. In order to simplify the maintenance of the entire system, the design team decided that the entire system should be broken down into a series of smaller interconnected panels (see figure 3.10 Evolution of Design Development). To further support the idea of having a building that showcases new building sustainable technologies, the design team added to the programmatic requirements of the building by creating a living exhibit. The basic idea is that there are a series of rooms where the algae is flushed out and visitors could experience scientists extracting bio-fuel from the algae.

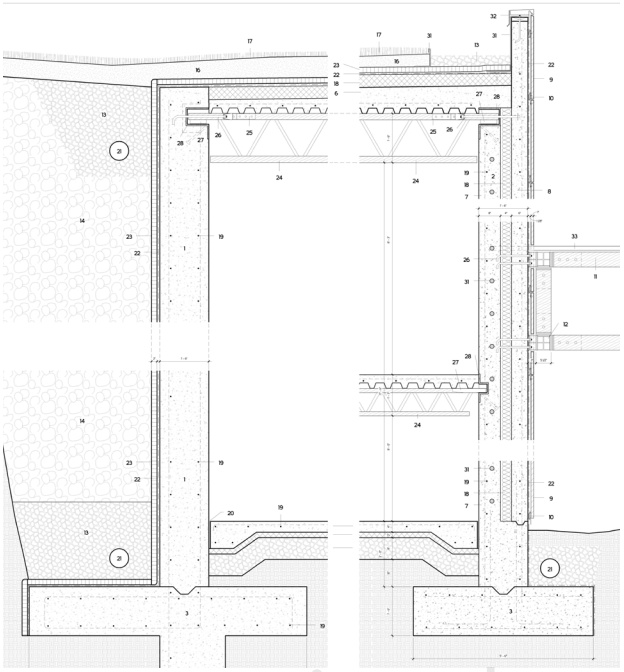
Looking at the connections of various building components this brings to attention construction detailing. It is not a main focus to determine the entire constructibility of the project, however, at this phase key construction details should be looked at. For the Plant project these more important key details would include the connection of the algae panel to the roof structure, the passively cooled concrete wall, and the extensive vegetative roof.

The Design Development phase is arguably one of the most important phases in the design of a building because it transpires the large conceptual ideas into a tangible building.

overall floor plan

building section





construction details

Figure 3.10 Evolution of Design Development

3.3 The Rings of Method

Schematic Design and Design Development are the two stages of the basic architectural services that deal heavily with the design of the building. The final three phases of the basic architectural services deal with the construction of the building.

> *"each stage should occur in a series of workshops with a goal of creating artifacts"*

Figure 3.11 Text Quote

Looking at these two phases of the design there are five crucial steps to the fundamental design of a building. These stages will serve as the model for developing a new design process.

1. *Brief*
2. *Analysis*
3. *Concept*
4. *Schematic*
5. *Design Development*

The conclusions made in chapter two will further characterize each stage so that a user influenced design process may be achievable.

Before beginning with this design process, the desire to implement this process must be established by both the architect and the user. This ensures that there is not a fundamental break down which occurred at Vignes Blanches.

Recalling the benefits of workshops in every case study, each stage should occur in a series of design workshops with a goal of creating artifacts that communicate the user's design ideas. Each stage of the design process should begin with a summary presentation and a discussion of all the elements created up until that point.

Ring 1: Learning *(Brief)*

The first meeting with the user is directed at learning and defining the parameters that will drive the rest of the

project. The main goal of this phase is to determine the key experiences that will drive the progression of the project. Depending on the user this initial learning can either be full of information or be lacking in information. The architect must ensure that the right questions are being asked so that a sufficient amount of information is being discussed.

> *"frame the project and understand possible ideas that will drive and progress the entire project"*

Figure 3.12 Text Quote

The meeting should start with a brief introduction of the project. It is crucial that the architect engage and stay connected with the user. Leading the discussion the architect must ensure that the ideas of the project are easily understood by both parties. Ring 1 is not solely the architect learning about the user but also the user learning about the architect and the design process.

At the conclusion of the learning discussion, it will be important for the architect to understand how the user defines the building typology. Designing a building driven by experiences is essentially creating a building typology that is specific to the user. In order to help the user see beyond conventional building typologies the architect must know how the user defines the type of building that will be designed.

The key goal at the conclusion of this design workshop is to frame the project and understand possible ideas that will drive and progress the entire process. Some of these key concepts might include important personal meanings, significant events, experiences, or relationships that the user would like portrayed into the design. The workshop should conclude with a discussion of possible types of artifacts that the user will create to communicate the ideas discussed throughout the workshop.

It is for the architect and the user to determine, but the user may need time to fully comprehend some of the ideas that are discussed during this first meeting. The architect and user may even determine that a second or third shorter meeting would be beneficial in concluding the learning stage.

Ring 2: Decode *(Analysis)*

Beginning with a discussion of the first artifact, the main goal of Ring 2 is to identify and condense the many ideas into the few ideas that will serve as the basis of design. Using the artifact as the basis of discussion will be an efficient way for the architect to understand how ideas are prioritized by the user. The nature of the artifact can also be a way for the architect to understand the one most important experience that has influenced the user.

Carefully analyzing the artifact deeper the architect and user should identify key components of the artifact that could translate into building design components. Most notably, the programme should come out of this initial analysis. Using the analysis of the artifact the spatial requirements, definitions, and possible adjacencies of the building are identified at this stage.

Ring 2 will conclude with the initial presentation and analysis of the site for the building. At this stage the site should be merely introduced. It is important that the site be first analyzed by the user in his or her own way before the architect gives the more formal analysis of the site. The site analysis will serve as the basis for the second user created artifact. At the conclusion of this stage there should be a clear and identifiable vision for the project.

Ring 3: Invent *(Concept)*

Ring 3 will serve as a continuation of the previous stage, starting with the site analysis. By this stage the user will have an artifact that communicates their analysis of the site. After further discussing and analyzing what they have decoded the architect will then present the user with a formal site analysis.

The architect's site analysis will include pertinent information that could affect the design of the building but may not have been necessarily as important to the user.

This stage is mostly concerned with creating and defining ideas that link the vision, site analysis, and artifacts created thus far. The artifacts that the user creates at this stage should allude to possible building forms, textures, materials, adjacencies, and other building elements. Discussions about the possible evolutionary aspects of the building design should occur at this stage as well.

Ring 4: Transpose *(Schematic)*

The artifacts created during the last stage should begin to indicate some elements of the building design. The primary goal of this stage is to take all of the previous ideas and artifacts and begin to translate them into a formal architectural idea. At this stage the user does not need to particularly create design drawings but design drawings should be produced by the designer if not the user at this stage. It is important to remember the driving experiences and ideas as the design progresses. Furthermore, at this stage the initial evolutionary ideas should be highlighted in the design drawings. Similar to the qualities presented in the previous section this stage should conclude with a holistic understanding of what the building will look like.

Ring 5: Transpire *(Design Development)*

The Design tasks at this phase should begin to transfer over to the designer. By this phase the key ideas should be understood well enough by the designer so that extra design ideas are not added. The main goal of this phase is solving the core problems of the design with respect to building codes and regulations. The designer should also begin to design the key details of the building that will enforce the experiences to be portrayed throughout the design.

The end of the last phase should be the culmination of a design package that includes, a vision, key drivers, spatial requirements, plans, sections, elevations, overall character of the design, detailed description of how the design can be changed, detailed description of how the significant experiences of the user are infused into the design of the building, and the artifacts created by the user.

> *"learning how to adapt the process to specific users is the benefit of having a process that is intended to evolve"*

Figure 3.13 Text Quote

An important component to the effectiveness of this design process will be a review of the process conducted by the user. It is much too difficult to create a singular process that is equally significant to all users. However some users will have similar personalities and qualities therefore learning how to adapt the process to specific users is the benefit of having a process that is intended to evolve. The nature of this process is inherently an example of metadesign. There is a general framework to the design process, but the process is intended to be modified for the user and by the user. Stemming from the ideas of metadesign not every user will carry an equal amount of involvement throughout the design process. Recalling figure 2.19, every user will design their process to a varying degree.

Early on, the user determines how much of a designer role they will play throughout the process. Furthermore, the level at which the user chooses to be a designer dictates the degree to which the architect is a designer. Depending on the users design involvement, this could mean that the architect is merely an overseer. However, this is the most unlikely situation.

Architects go through a stringent training process that requires them to be able to synthesize the many complex

issues of putting together a building. The most prevalent of these issues involves constructibility. The design-bid-build model described in the previous section describes not only the design but also the construction of a building. The architect is crucially important in ensuring that the project can be constructed. In this new design process, whether the user is a passive designer, power designer, or a metadesigner, the architect must remain active throughout the design process to ensure that the user's vision can be constructed successfully.

chapter 4. design parameters and variables

In the growth process of a tree there is no way to accurately forecast how a tree will grow under any set number of conditions. Every external influence even though similar will affect each tree differently, thus causing the tree to respond differently. This basic principle will be the point of emphasis for the design experiments. Every person is affected differently by their own experiences. The following experiments will be exploratory in nature. The intention of these experiments is to test the process ultimately making observations, conclusions, and enhancements to the tree ring method.

The experiments will be analyzed against each other. In order to make sure that the analysis is focused on the effect of the user's experiences, specific variables of the project are controlled. This also ensures that no other variables affect the design.

4.1 Users

The design experiments are intended to show how the various experiences of a person will influence the design process. In order to do so effectively, an appropriate test user group must be determined before all other project variables. The proposed design methodology is not intended for any one specific type of user or user group. The design experiments should illustrate that any person who wishes to use their experiences as a basis for design while fully engaging throughout the design process may do so with the proposed design methodology. It is important then that an appropriate test user group is one which represents a broad range of the general public.

The test users should represent both right brain dominance as well as left brain dominance. This is particularly important because the users will be engaging in the design process.

Therefore, the test group should incorporate creative users that use design process everyday as well as users who do not consciously use any sort of design process on a day-to-day basis. Incorporating these two possible types of users will help explain that any person can partake in this type of process.

Similarities in experiences is another important quality that must be present in the test user group. Two different people might have similar experiences, however, there are many other factors that influence the effect of this experience on a user. Having a user group with similar qualities is crucially important in showing how similar experiences will produce greatly different design outcomes.

To ensure that the test group includes the most appropriate users, an initial group of three people will be condensed down to two users. After an initial selection of the three users, each will go through the first two Rings, Learning and Decode. After the Decode phase, the two users that best fit the user criteria defined here will continue through the last three phases of the design.

Figure 4.1 Design Experiment Users

4.2 Building Typology

The type of building is not necessarily influential in helping to support the hypothesis, it is important that each user design a similar building typology. By doing so, the outcome will help show that with very similar parameters each process will be executed very differently because of the way in which each users experiences have developed.

For this experiment it is best that the building typology is simple enough for any user to be able to identify with it. The simplicity in building typology will ensure that the user does not waste time trying to understand the intricacies of an unfamiliar type of building. The user will also be able to gain a closer connection to a more readily understood type of building. The building typology must also be easily identifiable and relatable to any user.

The one most easily understood type of building is a house. These design experiments will explore the design of a house implementing the user influenced tree ring method. Each house will also be constrained to an area of around 3000 square feet.

Figure 4.2 Example Residence 1

Figure 4.3 Example Residence 2

Figure 4.4 Example Residence 3

4.2 Site

Figure 4.5 Site Panoramic

The test users all live in Los Angeles, California, therefore to make the design less complex, it is beneficial to have the site located in an area that they are all familiar with and can physically visit.

Early in the site selection process, three main factors played an important role in determining the most appropriate site. First was the method of selecting a site. In a real life situation, typically the user or client would already have a site in mind. In most cases, the user has a certain fondness for their site or they would never have bought the property to begin with. In order to ensure consistency throughout each project, all three users understood that a site would be selected for them. In order to ensure that a completely irrelevant site was not selected, each user was allowed to give input during the site selection process, but, they did not choose the final site location.

With the user input being accounted for, the second major factor that influenced the site selection was the general vicinity of Los Angeles for the location. With respect to experiences, each user grew up in various parts of Los Angeles and each of these areas played an important role in the development of their experiences. Each person identifies with a different area of Los Angeles which

makes it difficult to filter down to one area that each user potentially relates to. The one consistent element that was prevalent to each user was the relationship to downtown Los Angeles. Each user identified with the downtown area, but none actually wished to live in the area.

Lastly, was the decision for a renovation project or a completely new building. Following in line with the evolutionary essence of this thesis, it is fitting that the project is a renovation project. While this issue was not major to any on test user, it is an issue that was factored in during the site selection. Ultimately the idea of a renovation project was eliminated due to the complexity of renovation designs. The decision stemmed from ensuring that the users maintained a majority of their focus on the design of a house influenced by their experiences.

4.2.1 Site Description

The site, 317 N. Boylston Street, is located just north of downtown Los Angeles. The site sits on the western side of the 101 freeway and the 110 freeway intersection. The 110 freeway serves as a major axis connecting the site to both the Dodger Stadium a little over two miles north, and the Staples Center, L.A. Convention Center, and L.A. Live three miles south. Directly west, about three and a half miles lies Koreatown. A mile and a half east of the major freeway intersection is Chinatown (see figure 4.6 site context).

The immediate surrounding area contains mostly residential buildings with the exception of a few schools. Immediately across the street is a smaller elementary school and the Edward R Roybal Learning Center, a public high school in the Los Angeles Unified School District (see figure 4.7 vicinity map).

The lot is a rectangular shape measuring roughly one hundred twenty seven feet in the long direction and approximately sixty feet in the short direction. Oriented along a northwest and southwest axis (see figure 4.8 Existing Site Plan), the lot area is equal to about 7,694 square feet. In accordance with the Central City West Specific Plan Ordinance, the maximum allowable build-able area is 4,908 square feet. The lot is also zoned for a front and rear yard setback of fifteen feet, a side yard setback of five feet, and a maximum building height of seventy five feet.

The lot sits on an elevated hill slightly higher than the high school directly across the street. With a panoramic view of downtown Los Angeles at the base of the lot, a gradual slope across the length of the lot gives a better perspective twelve feet higher in elevation.

There are two adjacent lots, one empty and on the other sits a typical style house with a sloped roof. The neighborhood is a generally quiet neighborhood with an abundance of adolescent activity at the park during the early evenings.

Figure 4.6 Site Context

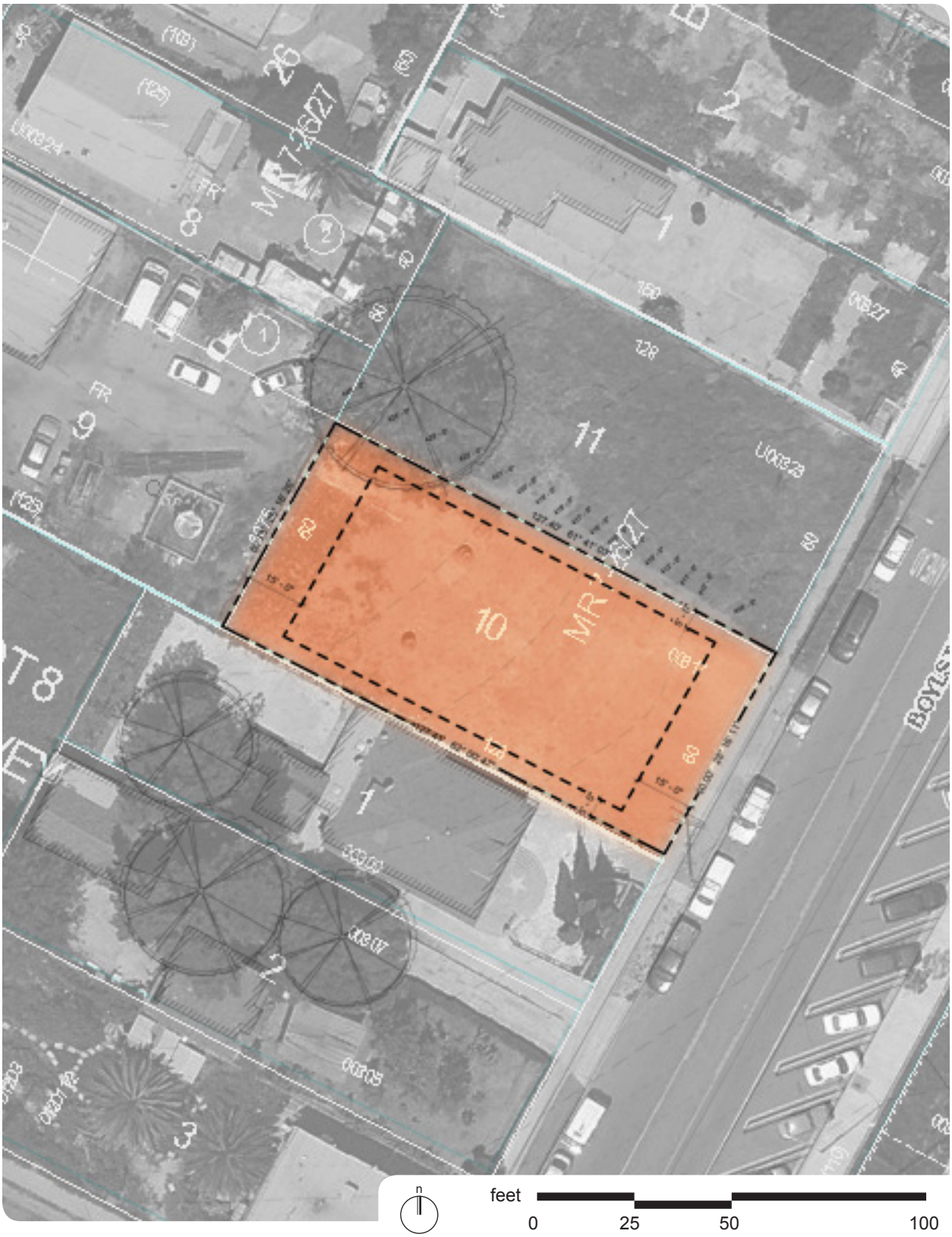


Figure 4.7 Vicinity Map

Part II:

Late Wood (design experiments)

The faster growth of early spring makes large cells that are light in color, the lighter colored area of tree rings are called earlywood or springwood.

chapter 5. design experiments

Each design experiment began at ring 1:learning, with a workshop devised to have the users address three simple tasks: give a brief introduction to yourself, identify some significant experiences that have shaped you, and describe what a house means to you. These tasks elicited an initial understanding of the users and were used to provoke further discussion during the learning phase. These initial tasks are the only aspects of the design process which are consistent amongst the three users. Each succeeding step is determined by the users' unique answers to these questions.

The first workshop concluded with the completion of three important foundational pieces: first, an action plan that roughly outlined the succeeding workshops for each phase, secondly the degree to which the user wanted to be a designer, and finally the next steps in the design process.

These parameters are just the starting point. Remaining true to the evolutionary nature of this process, it is expected that the users will evolve throughout the process, consequently changing their level of involvement during the process.

5.1 The Vault

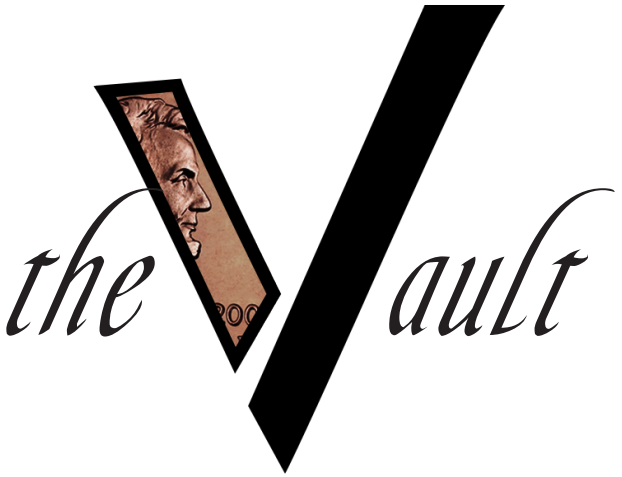


Figure 5.1 The Vault Brand

5.1.1 The Vault - Learning

Figure 5.2 User/Designer Spectrum - J.A.

A brief introduction about yourself?

JA: I was born, raised, educated (K-12 and university), employed and started my own family within a 29 mile radius of where my life began, French Hospital (no longer in existence) in China Town in the City of Los Angeles. This means I have spent most of my 52 years within the same geographical landscape on a daily basis. I have spent most of my 455, 550 human hours thus far sleeping, eating, traveling the same freeways and roadways, seeing the same cities, schools, landscapes, buildings, hues, colors, people, languages, foods, restaurants, places of worship, etc.

How does this possibly influence who I may be? Possibly in many ways, gravitating towards the familiar, enjoying the security of home, preferring the presence of family and the more intimate, and searching for silence and repose within the known.

I am certainly a more of a solitude seeker, mostly preferring time away to read, think and write. But I also enjoy the intimacy of my partner in life, and the family we have created. I am a collector at heart centered around art, books, coins trading cards, etc. Things that in time

become more valuable, more meaningful, that tell a story…..

If I had compartments that held my favorite activities, reading, writing, rooms filled with books, and comfortable chairs, connectivity, a place where food could be created and celebrated, that might keep me in the same spaces for endless hours. As art and beauty are much admired, a view of mountains or cityscapes , filled with lights and contrasts, beckoning the eye to stare as if at the Norton Simon Museum staring at Van Gogh's Mulberry Tree, endlessly, would be fulfilling.

> *"mostly preferring time away to read, think, and write, but, I also enjoy the intimacy of my partner in life and the family we have created"*

Figure 5.3 Text Quote - J.A.

And lastly, gathering and enjoying movies and games together as a family or with friends amongst old game boxes in disrepair but holding many memories of laughter, challenges, sweet victory and inevitable defeats, at cards, Monopoly, charades, reading together are all clues to what completes my solitary nature.

What are some significant experiences that have shaped you?

JA: I think I combined this into the first one above.

What is a house to you?

JA: A house to me is a place where you feel you can retreat into and just commune with life though the times spent with family and at times alone too. There needs to be space for both, interaction and solitude. A place where you can be hidden form the world and also airy and light, with many views of the environment that surrounds you that may even inspire you visually and within. Privacy and quietness with time for one's self is just as important as shared spaces that encourage laughter, cooking, eating, and activities that can be shared together. As I have always enjoyed recreational sport activities, a home should lead one naturally outdoors and allow for some sort of recreation to be instigated. I love to be surrounded by shelves of books, and chairs surrounded by books and art, and

all that encourages the pursuit of thought, reflection that may lead to some creativity.

I enjoy family den-like spaces, family spaces, that encourage interactions and conversations and sharing of one's self. I prefer more glass than walls, old and modern alike, wood-paneled libraries with quality of craftsmanship and the sleekness of steel, glass and light to surround the cooking and eating areas.

Conclusions made during Learning

Further discussion of Justo's answers to the three initial questions, two ideas arose as driving factors for the design process.

First, Justo is a man who lives for his family. Easily identifiable as the most important entity in his life, his family is what brings to life his aspiration and inspiration for every goal in life. The intellectual joy of reading and analyzing stories with his children next to a fireplace drives him to work harder during the week so that more of these opportunities are available during the weekends. He and his wife, although not professional food critiques, have come to enjoy being their own food critiques. These experiences have become some of their most memorable. At times they have even considered creating their own cookbook from some of their favorite dishes, recipes, and experiences from all of their travels. Justo does not consider himself an artist but has a fond appreciation for all forms of art. Marrying into a family full of artists, he looks forward most to holidays when the extended family gathers, creating inspirational art shows.

The second major revelation is the importance of Justo's coin collecting hobby (see figure 5.5). A major coin collector since childhood, any conversation about his coin collection quickly turns into the hidden significance of his favorite collection.

Justo's favorite academic subject is history. His enthusiasm for the discipline however extends to the stories of his

personal history. This enthusiasm for history intersects with his coin-collecting.

> *"each coin carries a specific piece of history."*

Figure 5.4 Text Quote

The stories that make-up his personal history are memorialized by his coin collections. For Justo, each coin carries a specific piece of his history.

Moving forward with the design process, Justo decided to use coins in the creation of his artifacts.

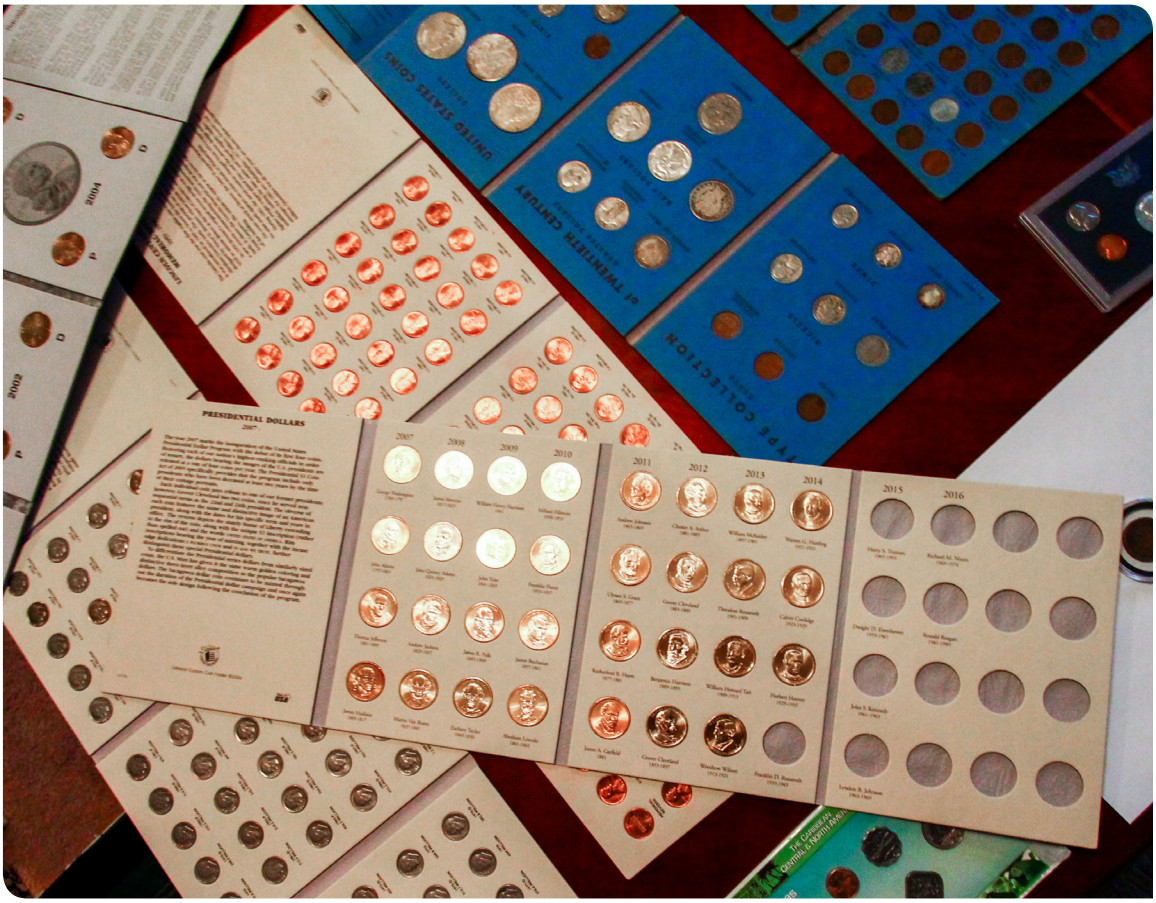


Figure 5.5 Coin Collection

5.1.2 The Vault - Decode

The primary goals during this ring is to determine an initial programme, to conduct a site analysis, and to discuss a conceptual understanding of the evolutionary aspect of the house.

The process for determining the programme came out of a discussion in which Justo ultimately decided to gather coin proofs from the major years in his life. Of all the coins in his collections he gathered six proof sets from the years 1976, 1980, 1990, 1993, 19998, and 2014 (see figure 5.6 Coin Proofs). He went on to describe the importance of each year. In 1976 he started his first coin collection. His career in education began in 1980. In 1990, he married his wife, Grizel Avila, and shortly thereafter had his first child, Elena. His second daughter was born in 1993 and then in 1998 his first son, Diego, was born. Finally in 2014, he reached his ultimate career goal, becoming the head of Human Resources for the Los Angeles Unified School District.

Figure 5.6 Coin Proofs

1976

First Coin Collection

1980

Began career in education

1990

Married Wife / 1st Daughter Born

1993

2nd Daughter Born

1998

1st Son Born

2014

Achieved Career Goal

Figure 5.7 Programme Definition

After multiple iterations of grouping and organizing the coin proofs, Justo further defined the spaces with relation to the experiences that are attached with the coin proofs (see figure 5.8).

In 1976, Justo started his first coin collection. The growing coin collection is a reminder of all the experiences he has encountered in his life. In regards to the privacy of this collection, Justo does not feel that this collection, although sentimental to his heart, should remain private. When reminiscing of the coins in his collection Justo is specifically reminded of the family gatherings filled with laughter, sharing, and storytelling.

The 1980 and 2014 coin proofs are directly related to Justo's career. One reminds him of his choice in career path and the other explains the journey to his career goal. The two together highlight the dedication, hard work, and ultimately the inspiration it takes to achieve a dream.

The last three coin proofs 1990, 1993, and 1998 are the most private and joyous memories. Each carrying its own level of importance, the spaces are intended for specific family members.

Justo ultimately condensed the initial programme, by classifying them into three different types of spaces, public spaces, semi-private spaces, and private spaces. The public spaces are designated for any visitor that enters the house; the semi-private space is for the immediate family, and the private spaces are designated for certain individuals.

Searching for a more unique identity, Justo created a vocabulary that aligned with the theme of pennies. Divided into three main spaces, the hub, the mint, and the chambers; the house begins to take on a unique personality (see figure 5.9).

The hub is derived from the hubbing process, which is a positive or relief that imprints images onto coins

1976

First Coin Collection

Public Space

1980

Began career in education

Semi Private Space

2014

Achieved Career Goal

1990

Married Wife / 1st Daughter Born

Private Space

1993

2nd Daughter Born

Private Space

1998

1st Son Born

Figure 5.8 Programme Development

during their. Associated with the 1976 coin proof, the hub will be used for large family gatherings. It is the space where the family will imprint their experiences and embed them into the house.

The mint is the place where coins are created. Related to the 1980 and 2014 coin proofs, the mint is an inspiring space where ideas can be formulated amongst the immediate family.

The final space, the chambers, is the storage facility for coins. For this house, the chambers are rooms for individual family members, used as a relief space to store their own personal experiences.

To create an even more unique identity, Justo named the house, The Vault. The Vault is not just a house; it is a repository of experiences and memories. Every visitor who enters The Vault embeds their experiences which become a part of Justo's growing penny collection.

Defining The Vault led to a discussion about the evolutionary aspect of the house. Rather than just using pennies as an artifact for designing, Justo wanted the pennies to also be a detail element of the house. From this, arose a conceptual idea to use pennies as a wall cladding. The initial idea is that certain walls be used as a display for the penny collection. As Justo's experiences and history change, the pennies on display can be interchanged.

The decode phase concluded with a site analysis. Discussing the site, Justo noted a few important aspects about the site that will help guide the design of the house. First, the lot has an unobstructed view of downtown Los Angeles. Recalling his fondness of nature and cityscapes, utilizing this view at various moments throughout the house is important. Because of his interest in education, the high school across the street is has a special significance that can be associated to the mint. Hidden at the top of the site is a view overlooking a less

Figure 5.9 The Vault Programme

desirable area of Los Angeles. While most people overlook this view, Justo finds beauty in the less desirable.

The last bit of analysis concerns a sense of duality to both the site and the coin. This duality is easily noticed with the two panoramas, the vision of the downtown area juxtaposed with the less desirable view of western Los Angeles. Duality also exists within a coin, one side heads and the other tails. Justo does not find one side more significant than the other, but there is a clear distinction between the two.

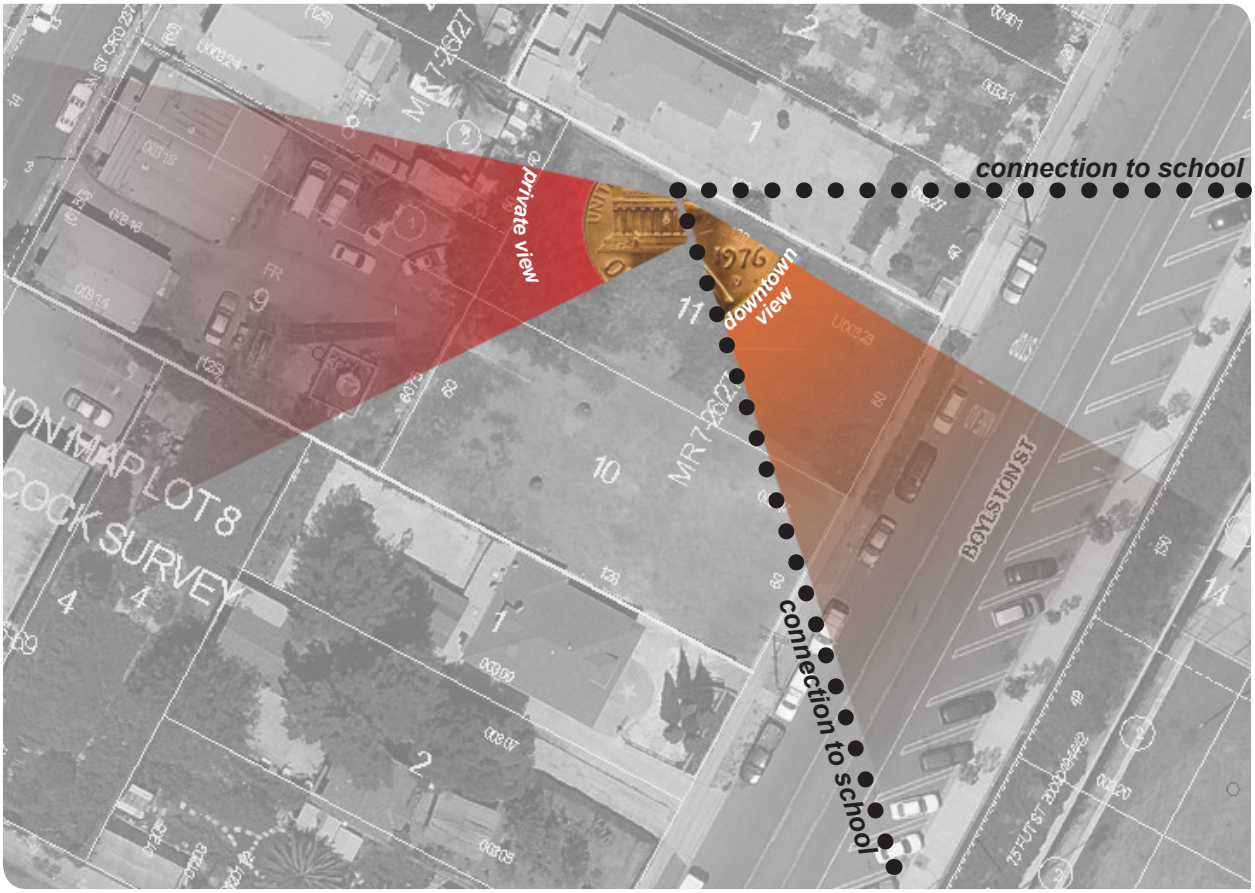


Figure 5.10 The Vault Site Analysis

5.1.3 The Vault - Invent

The focus at this ring is to move one step closer to an architectural design. Taking into consideration all of the information defined in the previous two rings, the final goal of this workshop is to gain a conceptual understanding of the spaces and their proximity to each other. The workshop began with a quick review of the programme and the site analysis. Compared to the previous workshops, the progression of this ring occurred quickly.

Again using pennies, Justo did a series of conceptual floor plans by laying out pennies on top of an image of the site. Each concept had a different core driver. Concept one which has a linear organization, is laid out with respect to the linearity of history. Concept two is organized in a cluster with orientations more closely associated to the site analysis. Concept two is that the entire house is on one level. Concept three is another iteration of concept two, with the exception that the house is on two levels.

Ultimately, Justo decided to further develop concept three, mainly because in this concept half of the house is hidden beneath the topography of the site. Justo liked this scheme the best, feeling that the essence of this concept is closely related to that of a vault, a place where a cherished possession is hidden away from plain site.

For the final task of this ring Justo made a conceptual outline of the general sequence of spaces. Illustrated in figure 5.14, the sequencing is another iteration of the site analysis combined with the ideas of concept three. The main entrance to the house is on the right side of the site. This entrance opens up into the Hub where family gatherings occur. Focusing on the importance of this space as a gathering space, Justo wanted the major architectural elements, such as the stairs, to be hidden or blended in subtly. Progressing forward, the next space is the Mint followed by an array of chambers.

Figure 5.11 The Vault - Concept 1

Figure 5.12 The Vault - Concept 2

Figure 5.13 The Vault - Concept 3

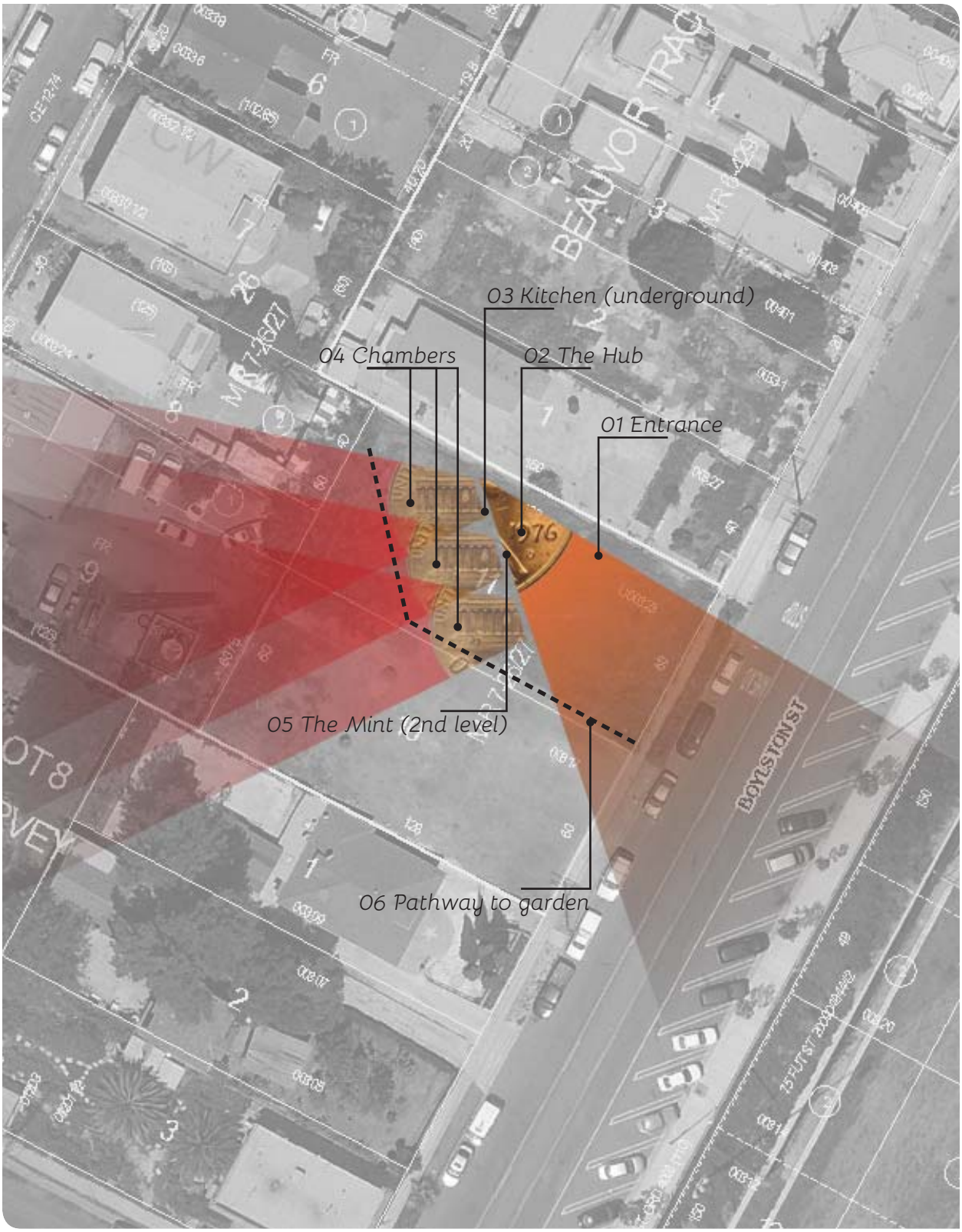


Figure 5.14 The Vault - Sequence of Spaces

5.1.4 The Vault - Transpose

The goal for the next ring was to synthesize all of the ideas thus far into an architectural floor plan. After attempting to create a more formal floor plan, Justo decided that the design responsibilities be readjusted so that he assumed a less prominent role as designer.

One main concept, duality, guided the development of the schematic floor plan. The main parti wall divides the house into two main parts. The materiality of one side is a simple concrete finish, while the other is a rusted copper panel. This main parti wall is also the focus for the evolutionary penny display.

Other elements added at this phase include an herb garden, a desert inspired front garden, and a patio area at the second floor.

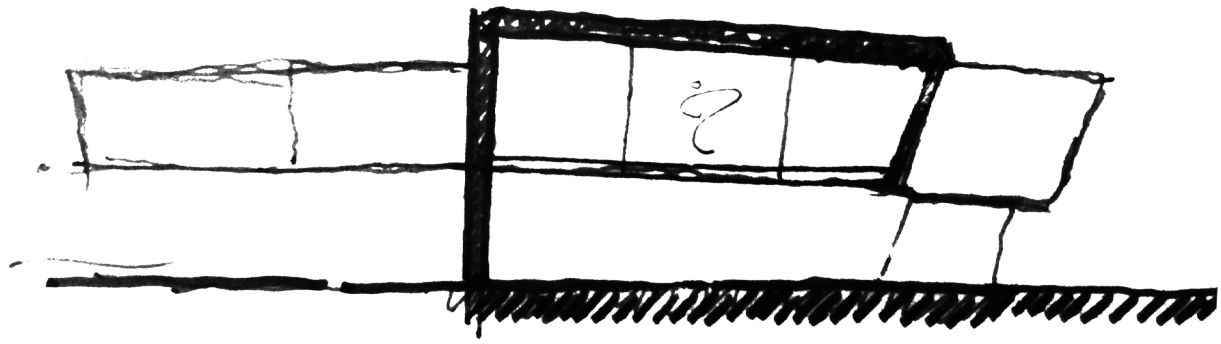


Figure 5.15 The Vault - Schematic Section

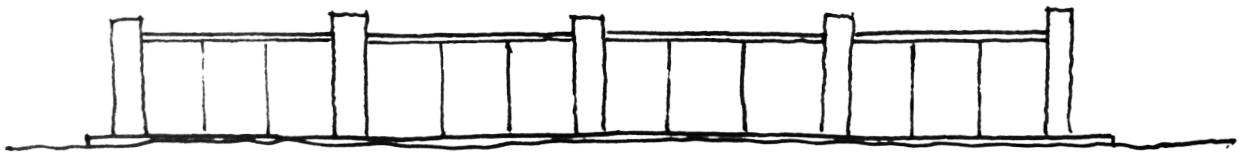


Figure 5.16 The Vault - Schematic Rear Elevation

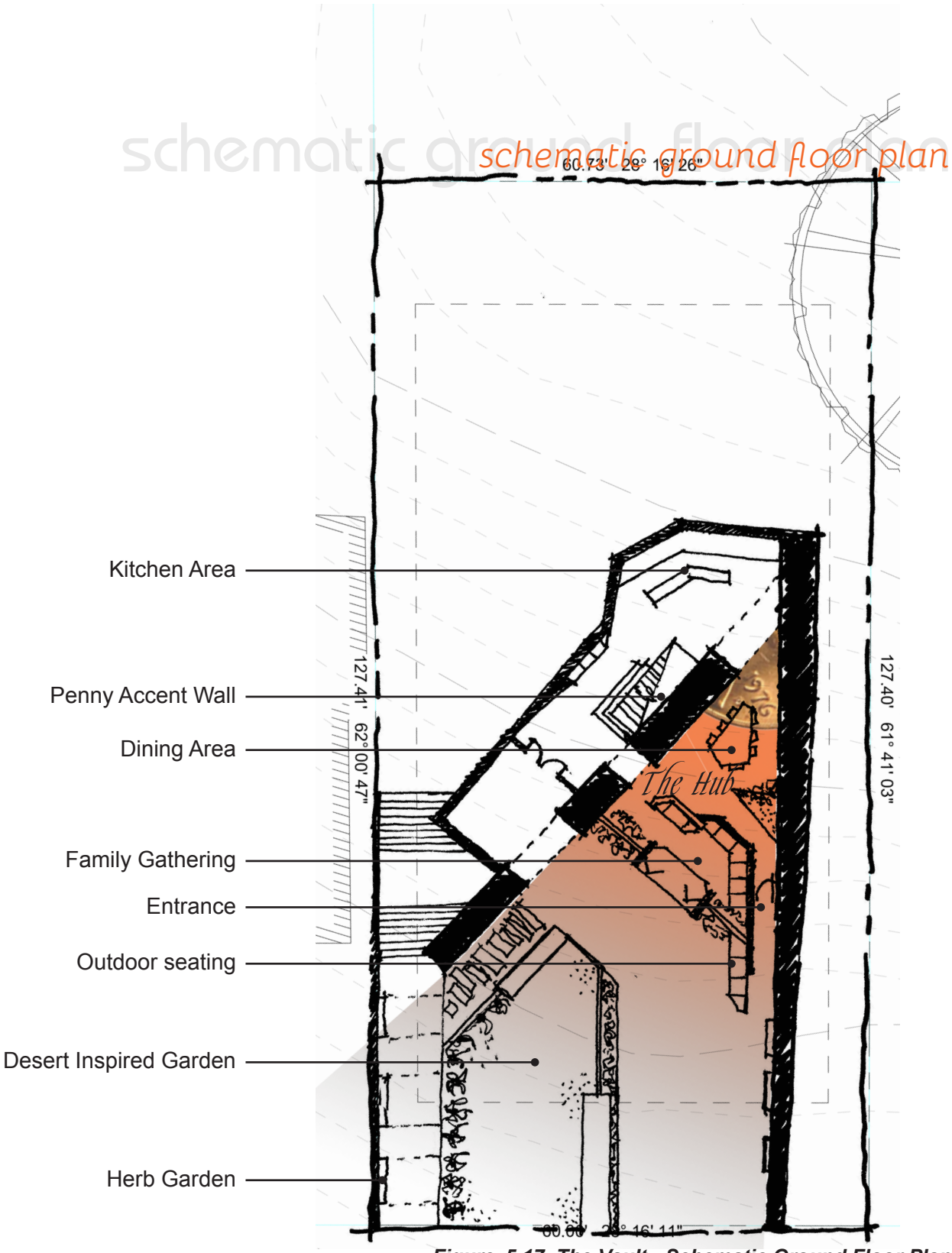


Figure 5.17 The Vault - Schematic Ground Floor Plan

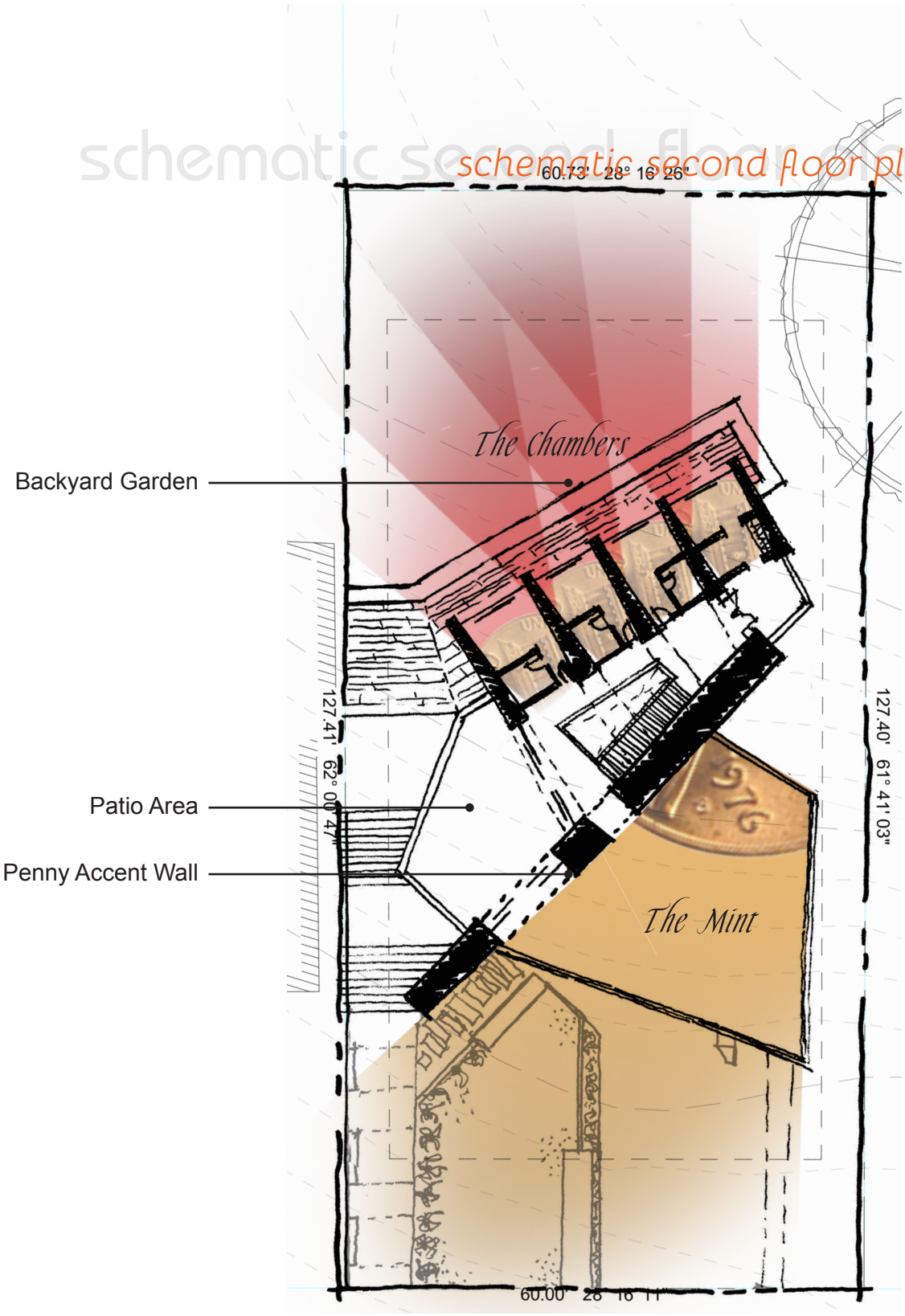


Figure 5.18 The Vault - Schematic Second Floor Plan

schematic ground penny detail

schematic penny wall detail

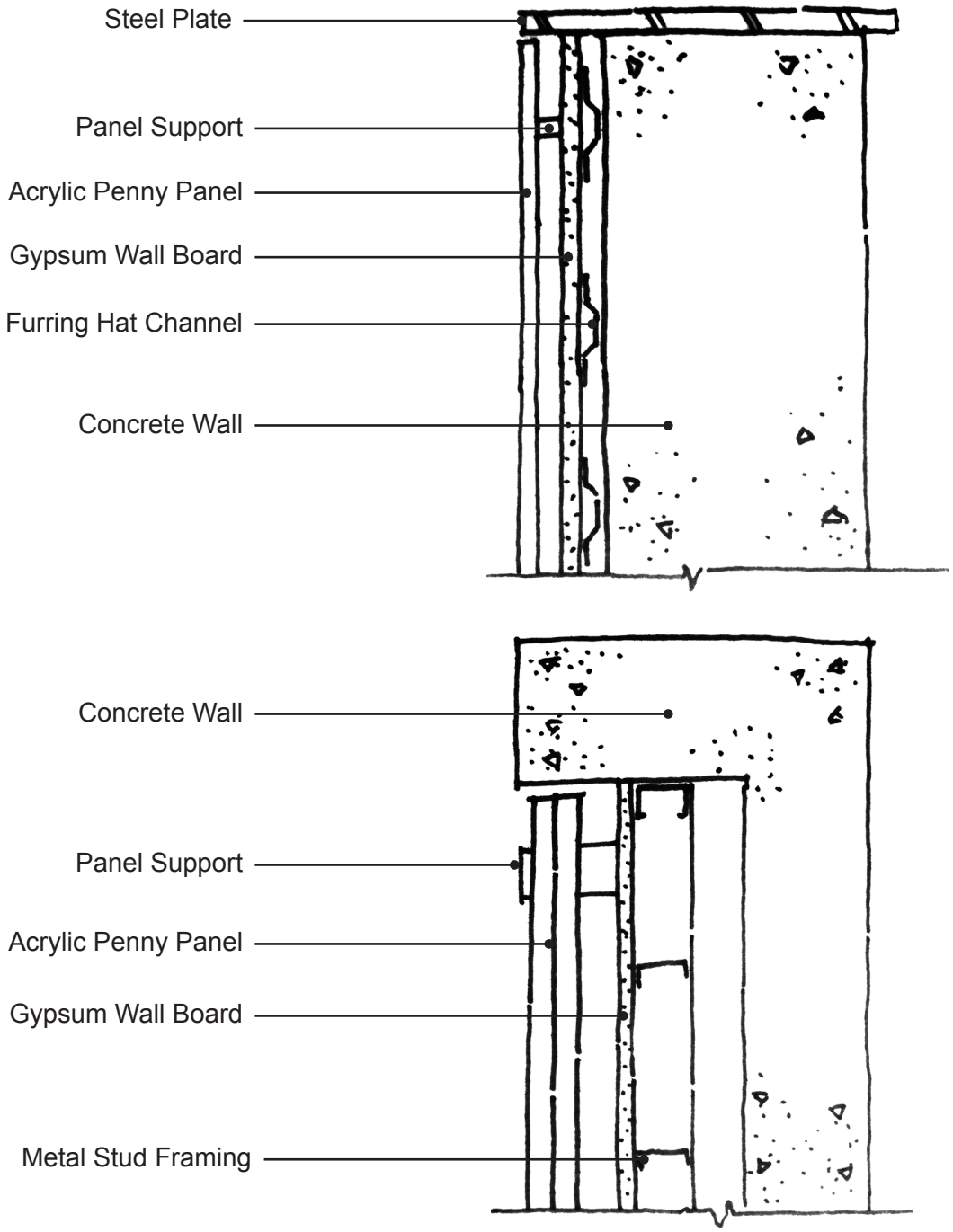


Figure 5.19 Schematic Penny Wall Detail

5.1.5 The Vault - Transpire

The core design of the building is completed by the start of this ring. The main purpose of this ring was to fine tune the design of the Vault. Major design changes do not occur during this ring. The changes that do occur ensure that the design fits within the parameters of th project. Although, major design changes do not occur, more complex layers of detail are added to the design. Some of these include room dimensions and areas that fit within the parameters, accurate construction assemblies and details, site grading, space planning, and specific building materials.

Figure 5.20 The Vault - Front Perspective

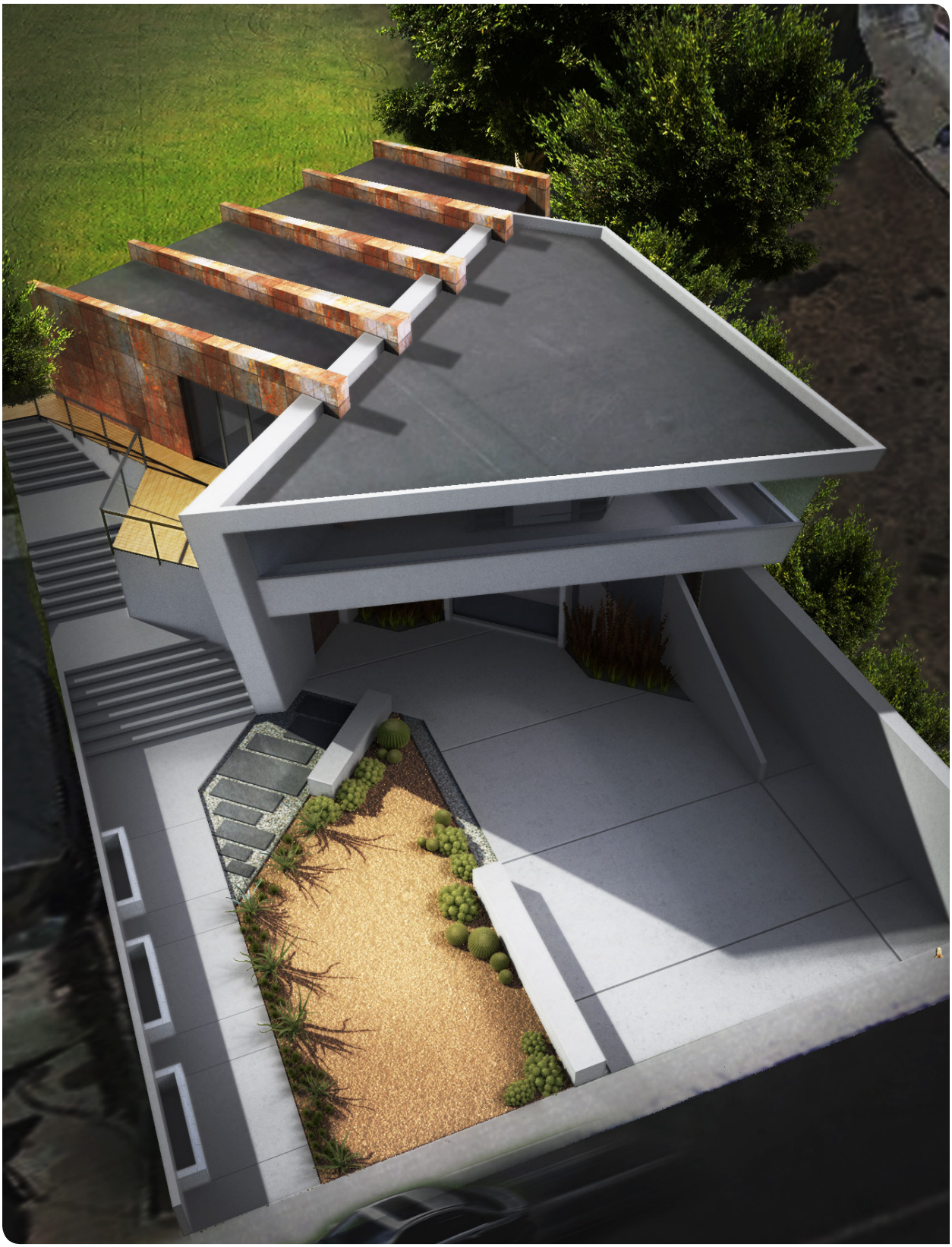


Figure 5.21 The Vault - Aerial

Figure 5.22 The Vault - Site Plan

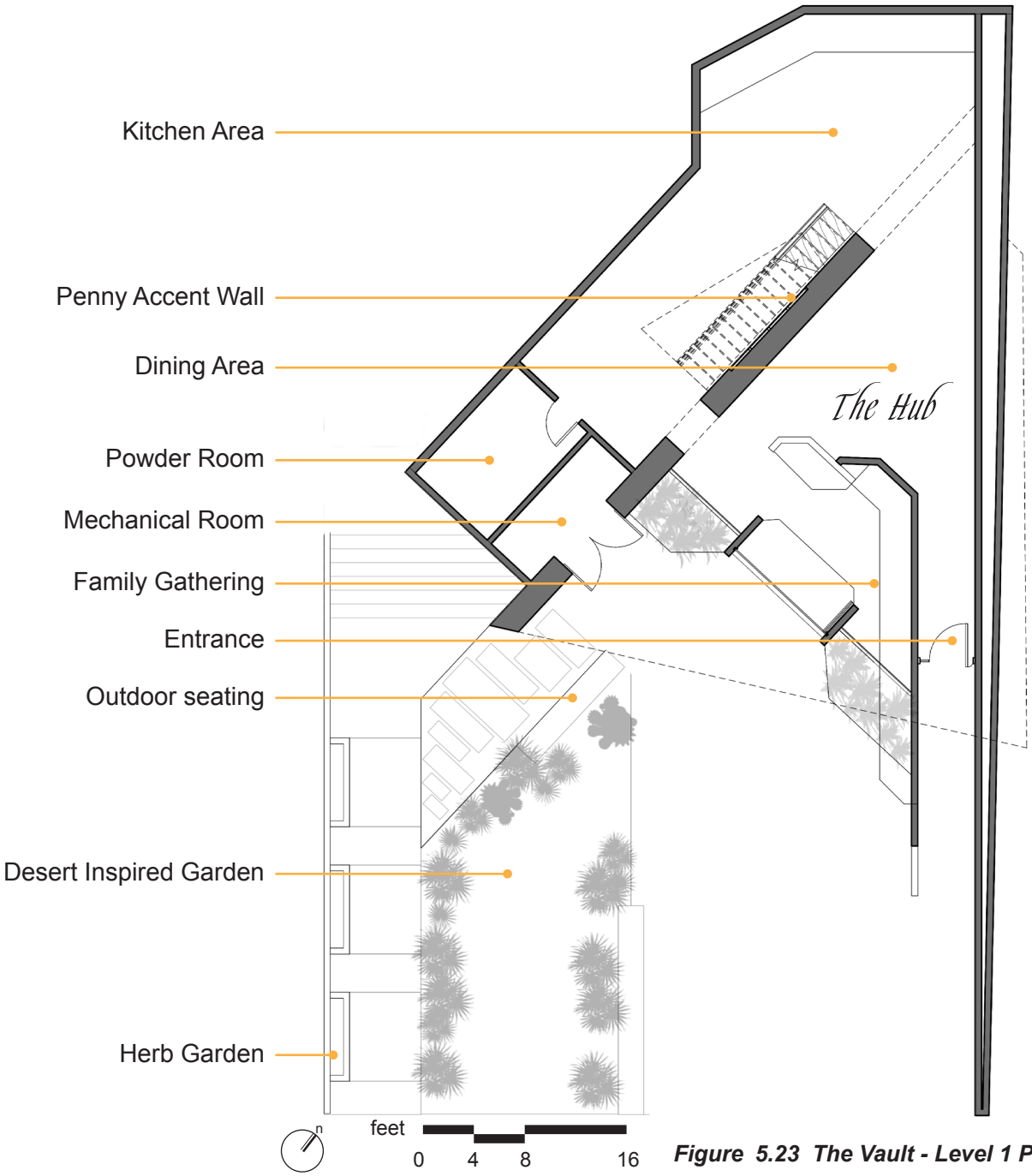


Figure 5.23 The Vault - Level 1 Plan

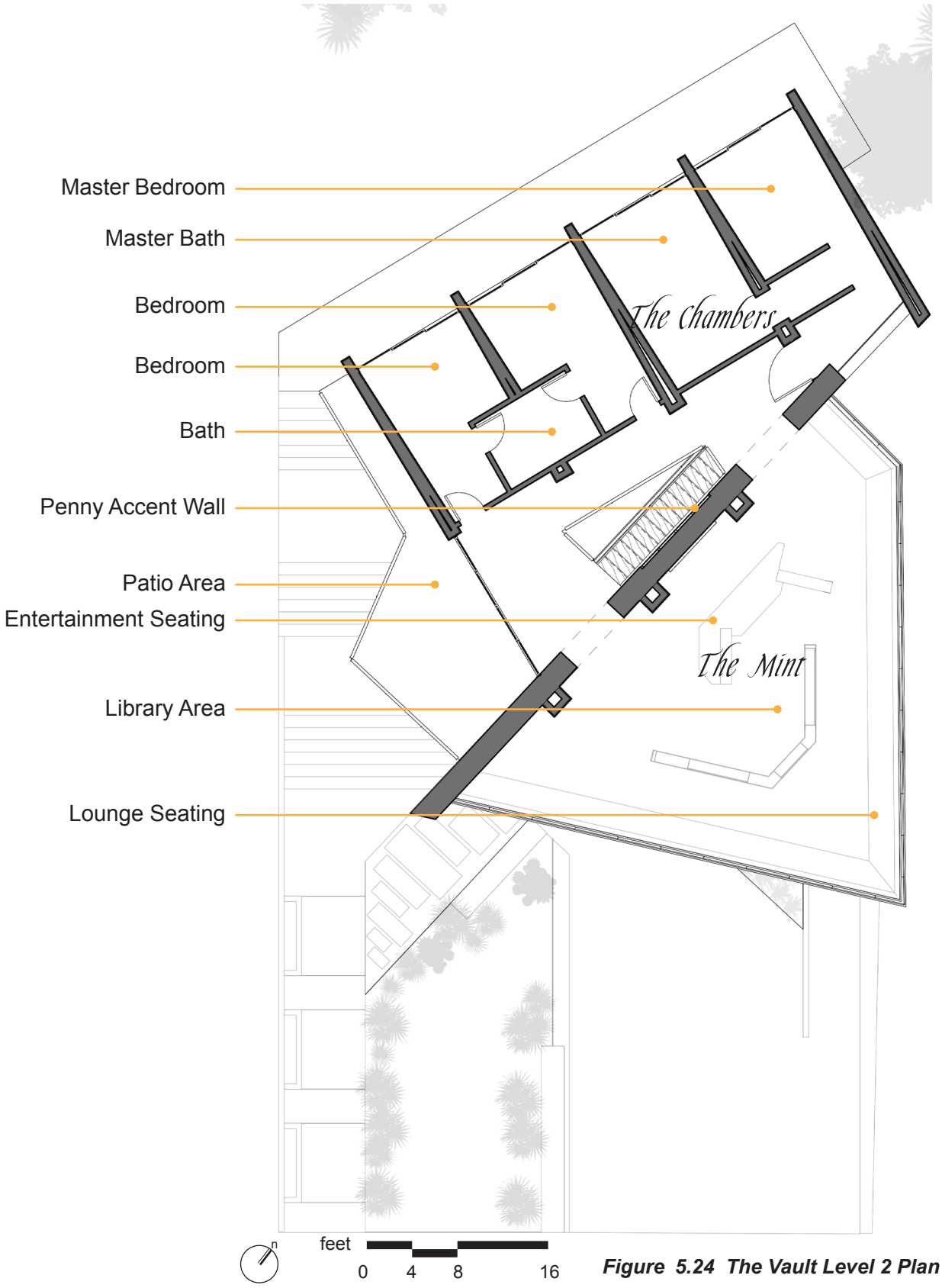
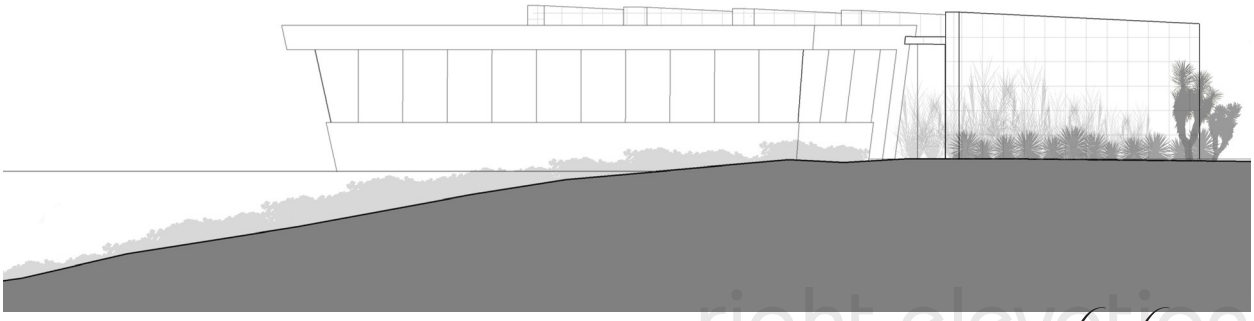
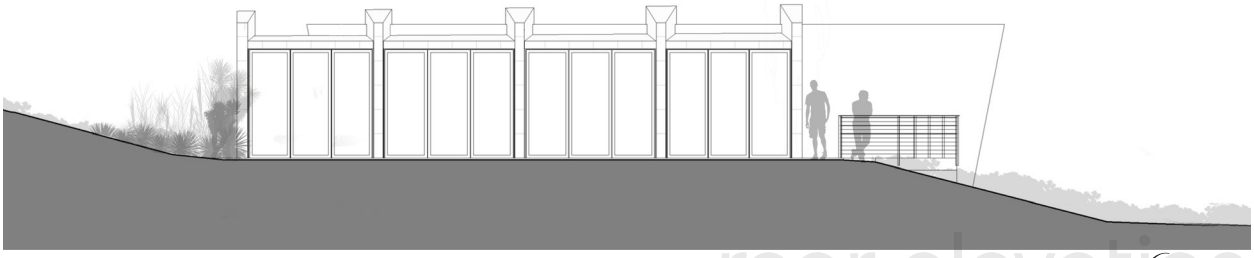


Figure 5.24 The Vault Level 2 Plan

Front Elevation



Right Elevation



Rear Elevation

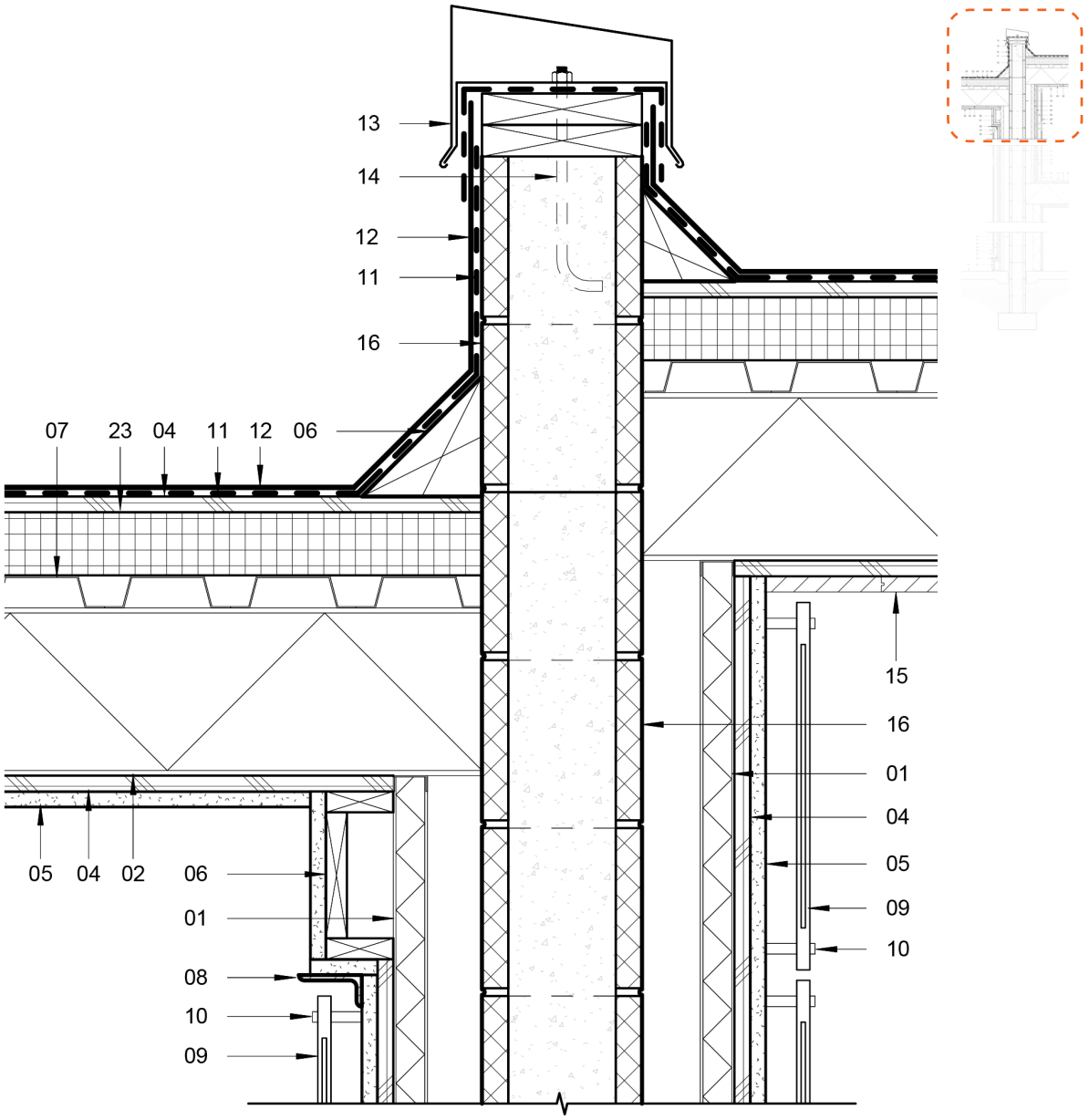
feet
0 4 8 16

Figure 5.25 The Vault Elevations

Figure 5.26 The Mint - Interior Perspective

Figure 5.27 Penny Wall at Stairs

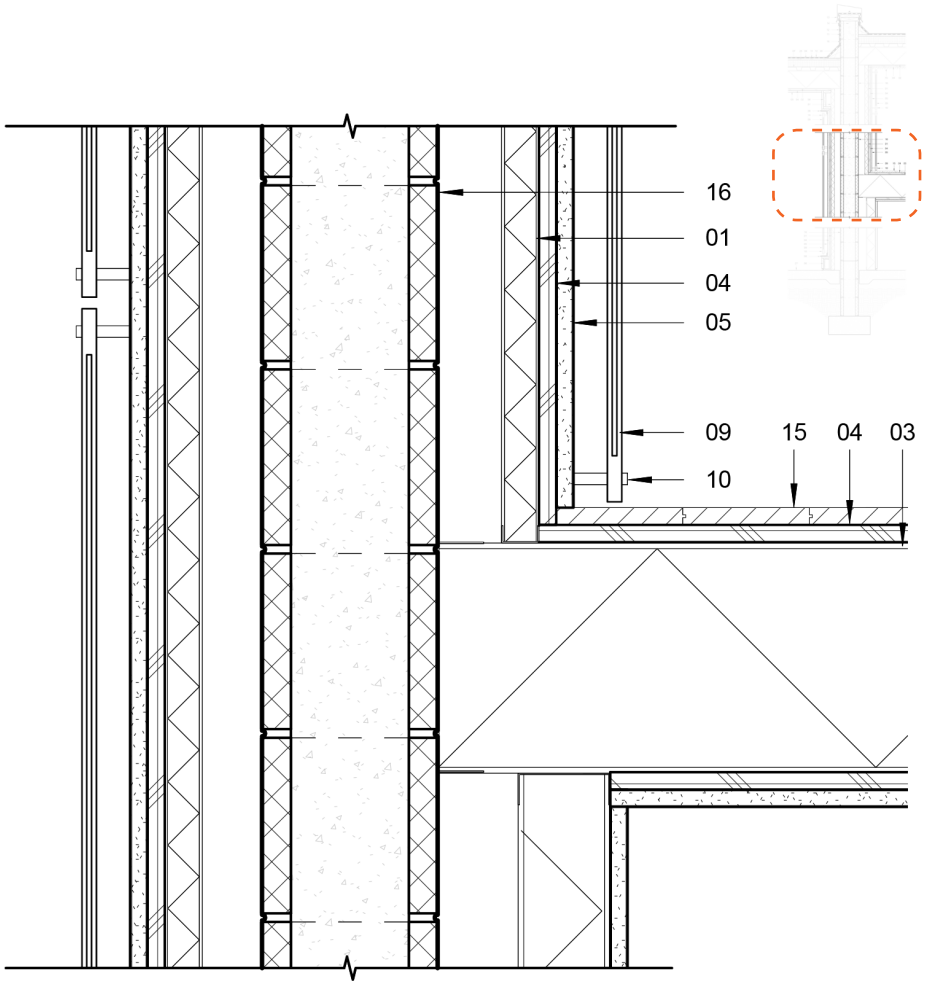
Figure 5.28 Penny Wall at Mint



inches
0 3 6 12

01 METAL STUD FRAMING
02 METAL STUD ROOF JOIST
04 FIRE TREATED PLYWOOD
05 GYPSUM WALL BOARD
06 PRESSURE TREATED BLOCKING
07 STEEL DECK
08 STEEL ANGLE
09 PENNY WALL PANEL
10 PANEL SUPPORT
11 WATERPROOFING MEMBRANE`
12 ROOFING MEMBRANE
13 ALUMINUM COPING
14 STEEL ANCHOR BOLT
15 WOOD CEILING
16 CMU BLOCK
23 RIGID INSULATION

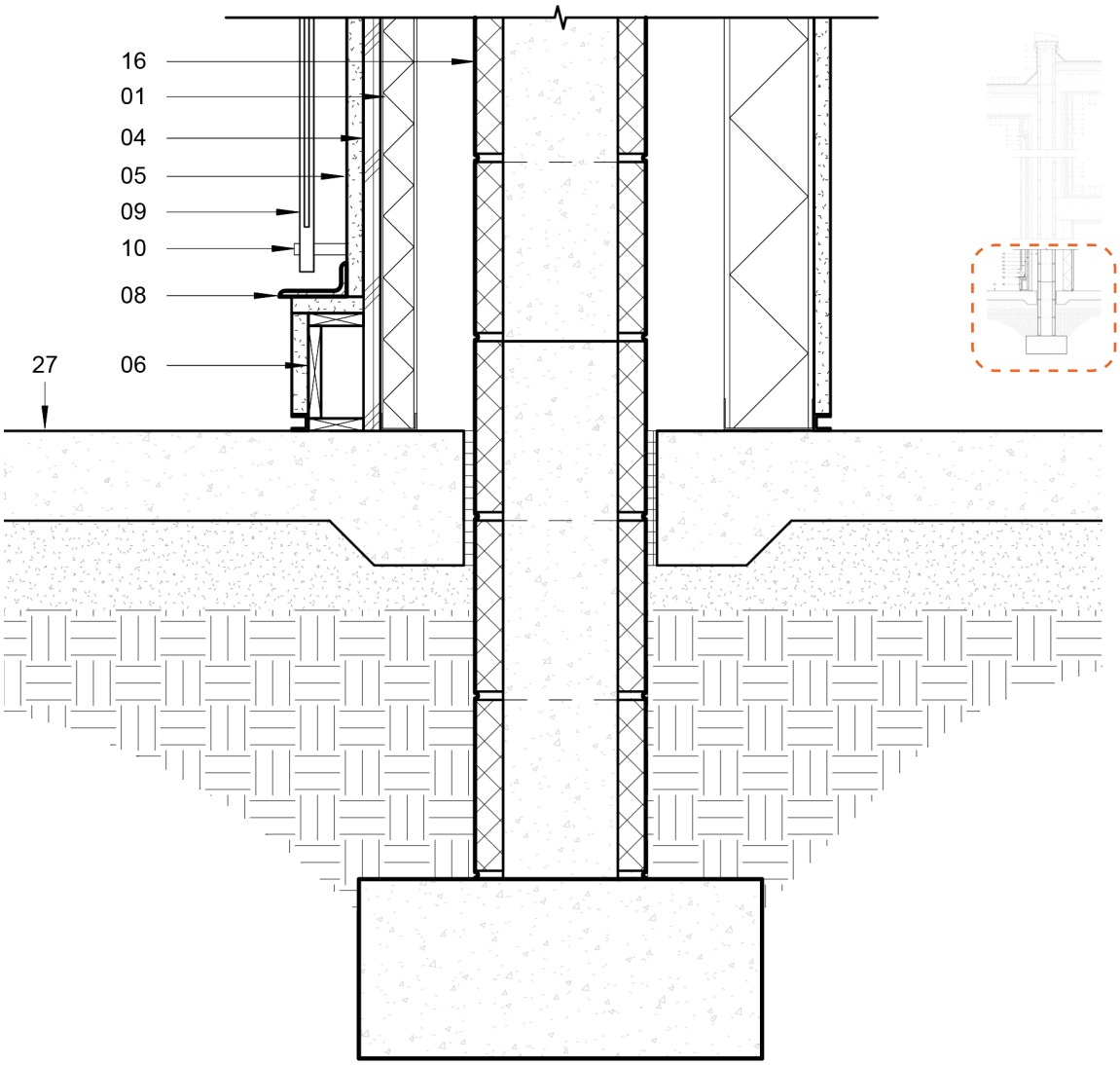
Figure 5.29 Penny Wall Detail Section @ Roof



inches
0 3 6 12

01 METAL STUD FRAMING
03 METAL STUD FLOOR JOIST
04 FIRE TREATED PLYWOOD
05 GYPSUM WALL BOARD
06 PRESSURE TREATED BLOCKING
08 STEEL ANGLE
09 PENNY WALL PANEL
10 PANEL SUPPORT
15 WOOD CEILING
16 CMU BLOCK

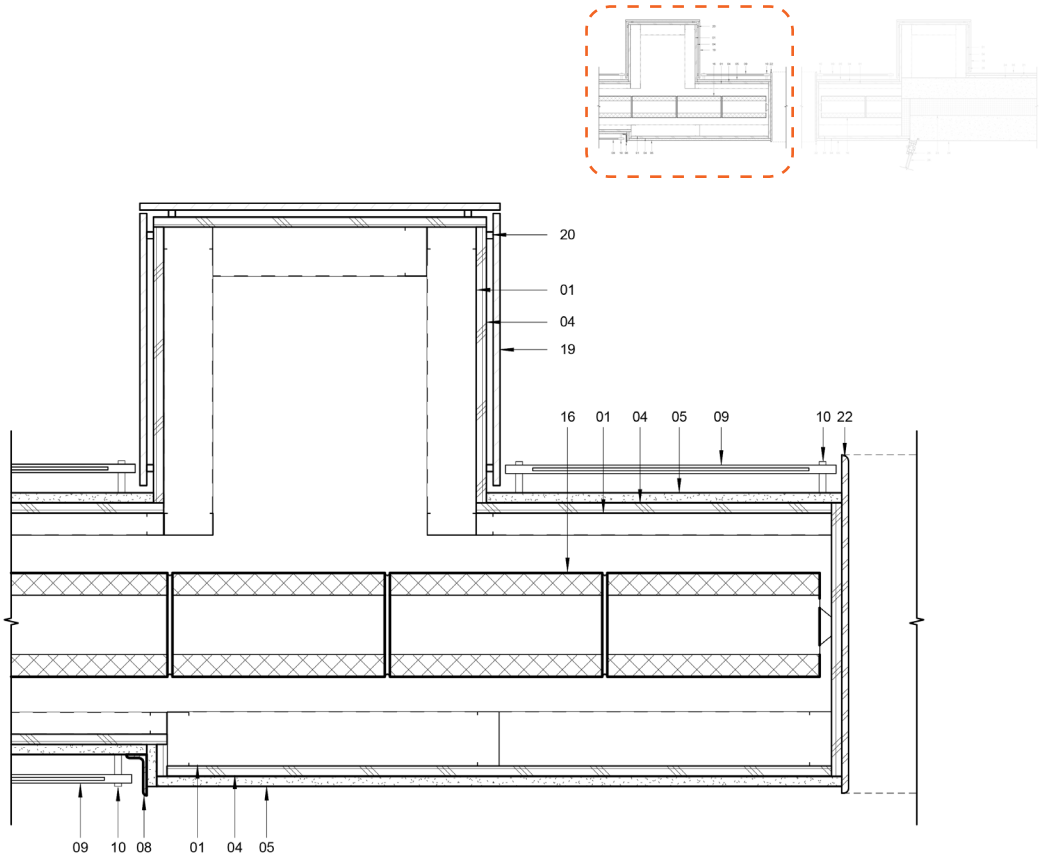
Figure 5.30 Penny Wall Detail Section @ Second Floor



inches
0 3 6 12

01 METAL STUD FRAMING
04 FIRE TREATED PLYWOOD
05 GYPSUM WALL BOARD
06 PRESSURE TREATED BLOCKING
08 STEEL ANGLE
09 PENNY WALL PANEL
10 PANEL SUPPORT STEEL ANCHOR BOLT
15 WOOD CEILING
16 CMU BLOCK
17 WOOD FLOORING
27 CONCRETE SLAB ON GRADE

Figure 5.31 Penny Wall Detail Section @ Ground Floor

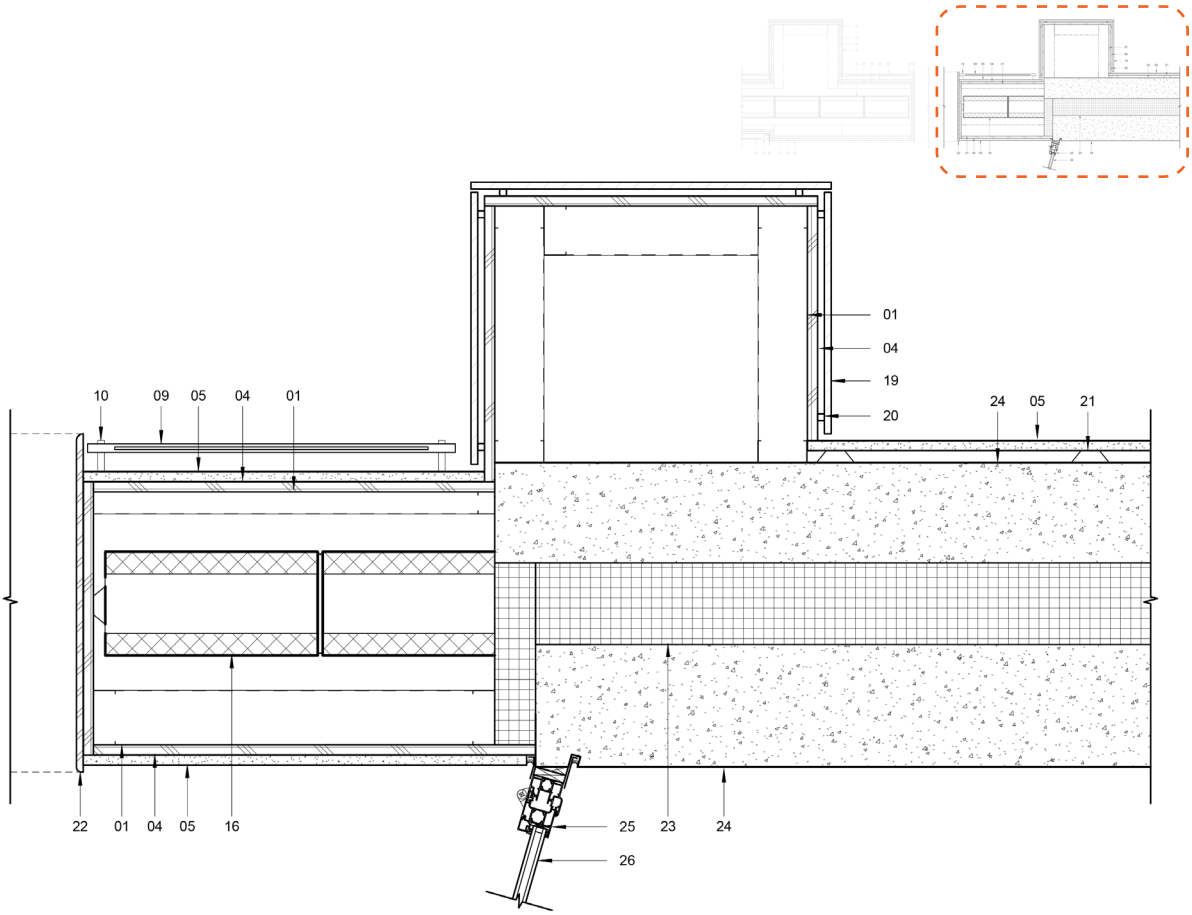


inches

0 3 6 12

01 METAL STUD FRAMING
04 FIRE TREATED PLYWOOD
05 GYPSUM WALL BOARD
06 PRESSURE TREATED BLOCKING
07 STEEL DECK
08 STEEL ANGLE
09 PENNY WALL PANEL
10 PANEL SUPPORT
13 ALUMINUM COPING
14 STEEL ANCHOR BOLT
15 WOOD CEILING
16 CMU BLOCK
17 WOOD FLOORING
19 RUSTED COPPER PANEL
20 NYLON SPACER
21 FURRING HAT CHANNEL
22 STEEL PLATE

Figure 5.32 Penny Wall Detail Plan



inches
0 3 6 12

01 METAL STUD FRAMING
04 FIRE TREATED PLYWOOD
05 GYPSUM WALL BOARD
06 PRESSURE TREATED BLOCKING
08 STEEL ANGLE
09 PENNY WALL PANEL
10 PANEL SUPPORT
15 WOOD CEILING
16 CMU BLOCK
17 WOOD FLOORING
19 RUSTED COPPER PANEL
20 NYLON SPACER
21 FURRING HAT CHANNEL
22 STEEL PLATE
23 RIGID INSULATION
24 CONCRETE SANDWICH PANEL
25 ALUMINUM FOLDING DOOR FRAME
26 INSULATED GLASS

Figure 5.33 Penny Wall Detail Plan @ Exterior Wall

Figure 5.34 The Chambers Exterior Render

5.3.1 Steps - Learning

Figure 5.35 User/Designer Spectrum - T.H.

The learning phase for Typhani did not occur swiftly as the previous project. Completely embodying the theme of evolution, Typhani started this process as one person, and a year evolved out of the qualifications of the proposed design method.

Ultimately moving from Los Angeles to New York, it became clear half way through the project that she would be the user least suitable for the design experiment. Although she did not finish the design exercise, she did complete a few stages of the design process and the foundation for which would have been her design project can still be compared to the previous two.

A brief introduction about yourself?

TH: I am in a point in my life where I have realized that 20 years ago I married my job, and now I want a proverbial divorce. My job has been everything to me, possibly because I was at the cusp of entering the profession during a permanent break up from my fiancée. Ironically, I have only dated my job since then. Up until the last couple years, my responses to “interests” would have been; my job, my students, and dance. However, after too much parental

involvement (not my own) I have become dispassionate about my job, my students, and dance. Which is unfortunate. As any divorcée, I am now struggling with what makes me happy. Which I cannot answer because it has been the same thing for the past 2 decades, so as I find myself "dating" again I am contemplating going back into English, actually, I am more being forced back into English, I am still not sure of what interests me. My hobbies have always included the arts, but now the arts are painful, so I am not sure. I have found a recent love in writing and research, as well as coaching teachers. Although I have not found a job that allows me to do this, I still have a couple opportunities that play into my new found love.

But that's me..in a nutshell. Unfortunately, my response is: I don't know. Had you asked me 5, 10, 15 years ago, I was still desiring getting married, having a family, and advocating for arts education. Now...not so much. I don't anticipate any kind of relationship, do not want children, and hate my job.

What are some significant experiences that have shaped you?

TH: I was born into an amazing family. My mom and dad are disgustingly in love. Being a product of an interracial family in the 70s our extended family disowned us, but having never met them I am over it. However, due to this anomaly, my parents felt the need to give us everything, so we didn't feel the loss. The result being, children who have no concept of financial responsibility, and two children who find it difficult to procure relationships because no relationship will never be like our parents. When I graduated High school, I wanted to be a cardiologist, and was accepted to the best medical school in California, UCSD, but for-goed that because my boyfriend at the time asked me to marry him, so I said yes...and pissed off my parents. I went to Riverside Community College and then followed him to California State University at San Bernardino. He wanted to go into pharmacy school so I decided to major in a subject that required the least amount of work so that I could graduate quickly

and go into some sort of job to help put him through school. So I majored in English (it was only 86 units) I could care less about literature...ironically, I found a great love in literature but that is beside the point, it was quick and easy! I got a teaching job right after graduation, and thought I "did my job" however, he felt he had been denied his "royal oats sowing" and promptly broke up with me so that he could complete this rite of passage. Hence my acceptance of marriage to my profession.

I fell in love with teaching and couldn't imagine my life without it. When I began, 16 years ago, I still was optimistic in the fact that I would find someone to share my life with. So, I would have wanted a place that would support a growing family, with a husband, kids, and their friends... almost 20 years later, I feel differently. I just want a place that is my own. I still love dancing and need a studio, I love research and writing and would need a study, I love entertaining, so would need a great kitchen and area for entertaining...these are all things I would have never thought would be important to me 20 years ago.

What is a house to you?

TH: My house, is a place where I nurture and host. The current house I purchased, had nothing to do with me wanting me to ground "roots" it was for my students and my dogs...literally. I know I don't belong here, but I wanted a place where my students could come to hang out, find solstice, create a family. How sad is that...as I am relinquishing that relationship. I also bought my current house, so that my parents had something to proud of...again sad! But that's the same reason I got my doctorate. I had no desire to better my education...but I had no kids...so this at least gave my mom something to talk about at her church group while everyone else was showing pictures of their grandkids. My personal situation would be fine in a rented apartment, but I do love to host my alumni dinner each summer, I always do a new alumni sleepover, and until the

district got involved, I hosted a concept party, leadership retreat, and multiple weekends with my students. My house was not for me...it was for everyone else, because truthfully, I don't need it. You inquired what nourishes my soul...at this point, nothing. I have been ripped from my dance program and ripped from my school, so I am now soul searching. I no longer know what makes me happy, what I live for, or what my hobbies are. Over the last 20 years my life has procured the following realities: I want to be married and have children...I married my job and only cared about my career, I hate my career but love writing and researching, I am still a dancer at heart and will always be.

Conclusions made during Learning

The responses that Typhani gave here were not the end of the learning phase. From the development of the Rings of Method, it was an initial intent that the each ring would be interrelated but distinct. Although the this process was intended to be modified, the modification that occurred during this project was unforeseen. The start of the project started the same as the other two. Further developing the project, the first three rings of the project all happened simultaneously and recursively.

5.3.2 Steps - Learning/Decode/Invent

The Steps project embodies an artist in transition through the form of dance and writing. Her story does not begin in a singular period in time but rather encompasses the past, present, and future in an ever-changing form she would one day call home. Her transition starts when she finds herself in a situation that forces her to make a decision that changes her career, her love, and her life forever. Typhani is devoted to her profession, so much so that she considers herself married to her work, and puts as much time and effort into her position as she would a marriage; her career as her husband, and her students as her

children to grow and nurture with. Typhani dedicated twelve years to her family at Diamond Ranch High School and created bonds which she considered stronger than blood.

Last year, Typhani's forced removal from her position literally ripped her away from her marriage and her family, and what she considered home at the time. This divorce caused a domino effect in her life that resulted in the demise of her creative soul. When she struggled through her divorce, she found no joy in her art, her writing, or her dance, and it left a vast hole in her heart.

Using the dance piece "Crossroads" as her coping mechanism for this change, and by going through the motions of saying goodbye, she hoped to eventually accept this change and ultimately move beyond the pain. She understood at this point in time that crossroads will always come back for an encore in her life, and that she accepted that this will continue to happen in the future. Her words, "at some point, it's time to go", fueled the beginnings of her design and this house that cultivates with her. This initial piece inspired an idea that while inside her house, there is a constant feeling of being at crossroads or a constant state of change.

When Typhani gave her notice to Diamond Ranch, her dance piece "Resignation" was a monumental depiction of a moment of her time in Los Angeles that she wanted to carry out and incorporate in her design. As the piece plays out, the feeling of death and rebirth are evident (figure 5.36), one pulling herself away violently from her love (figure 5.37) and struggling to stay afloat. In trying to keep her head above water, it's perceived that pieces of her are being ripped away while still trying to go through the motions of her day to day life (figure 5.38). In grasping her heart like it's been torn out, it virtually seems like something was plunged into it (figure 5.39), and she holds onto her side as if it's hard to breath (figure 5.40). At one point she looks

Rebirth

"the feeling of death and rebirth are evident."

Death

Figure 5.36 Death and Rebirth

Pulling

"pieces of her are being ripped away while still trying to go through the motions of her day to day life"

Away

Figure 5.37 Pulling Away

Everyday Motions

Ripped Away

"In grasping her heart like it's been torn out."

Figure 5.38 Ripped Away

Heart

Torn Out

"In grasping her heart like it's been torn out."

Figure 5.39 Heart Torn Out

Holding Side

"holds onto her side as if it is hard to breathe."

Figure 5.40 Hard To Breathe

Trapped

Looking Out

"she looks trapped within herself and appears to be looking out from the inside"

Figure 5.41 Trapped Inside

Children Holding

"Her children are on the floor holding on to her, trying to keep her in their world."

Figure 5.42 Children Holding On

trapped within herself and appears to be looking out from the inside (figure 5.41). Her children are on the floor holding on to her, trying to keep her in their world, and although they restrain her in an attempt to make her stay, she has to keep walking forward, pulling out of their grasps (figure 5.42). Because this was a foundational explanation of that phase in time, Typhani wished to incorporate this piece in the beginning of her household where she did not want guests to linger and hoped that this uncomfortable sensation led them

away from this section and further into her present piece and state of mind.

An intriguing fact that came to light was even though Typhani had a deep love for her marriage and children, she herself was never in love with Los Angeles. In fact, she went as far as to say that she hated the city and only found comfort within her family. Discussing this idea further Typhani explained that given her current state of mind and the experiences she has just been through, designing a house with regard to this experience would produce a dark unwelcoming house. Standing at a crossroad within the project, Typhani questioned the viability of living in Los Angeles.

Ironically, in 2008 and 2009 she spent a significant amount of time in New York where she felt a calling unlike any other before this. When she left New York to return to Los Angeles, she specifically felt that New York had taken her heart captive, and would not give it back until she returned. This idea that New York had latched onto her heart and held it prisoner is what drove her to this place to start a new, and with this came hope that she could win her heart back from the city.

Once she came to New York for an interview and first felt this draw to a song by Sam Smith, her life has never been the same since. She became so engulfed by the lyrics and her surroundings that she's nearly too overwhelmed and needs an outlet to in order to have it burst out. This new-found inspiration awakens the artistic spirit inside her and uses dance in order to find her way back to her creative soul, a sensation she once thought was lost.

Where she was once standing at a crossroad that held nothing in front of her, then suddenly New York opened a clear pathway to her destiny, and incongruously the only path she can see at this point in time. New York is helping her discover a passageway to a new and more fulfilling love interest in her life, and in choosing dance as her expression, it's continually culminating her discovery. Because

"left her fighting the pull to New York."

Pulled by New York

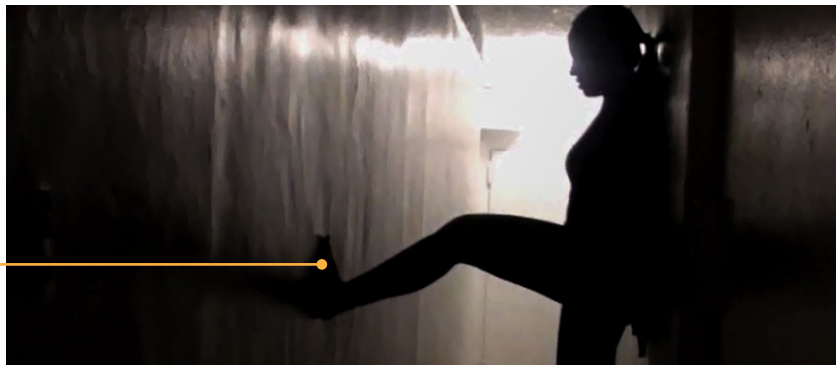


Figure 5.43 Latch

Being Latched

"pushes against the walls almost wanting to get away"

Figure 5.44 Pushes Against Walls

she was once married to her career in California, her divorce from Los Angeles initially left her fighting the pull to New York that one can subtly see through the movement of her ligaments depicted in her last dance piece "Latch" (figure 5.43). A new love interest can lead to another marriage, and this commitment is a significant step that takes all of one's heart and soul in order to thrive. Giving that level of love and dedication to a new love so shortly after a divorce from another is a formidable thought, one that she was still not sure she recovered from. In this interpretation, her movements depict an initial sense of resistance to this place, from outlining her former confinements while her ligament extensions pull her towards New York, this change that is calling to her. She pushes against the walls, almost wanting to get away, but her ligaments are then pulled back toward the city, physically latching on to her (figure 5.44). As she is being pulled in multiple directions both physically and mentally, the internal battle almost looks like it's too much to contain, and once she gives in to the pull, she is able to break free of that core confinement and is able to perform with leaps and bounds eluding to her now

"space that will allow her to stride."

Pathways

Figure 5.45 Strides

"brings her inspiration to find new pathways"

New Pathway

Figure 5.46 New Pathways

open heart. And although she originally rejected the change she was forced to make, New York was able to reel her into its world; it's already latched on and will not let go.

By caving into this new love she let herself feel again, and in a sense heals for the first time, as she explains this through her dance piece "Latch". In this interpretation, her boundaries made by her divorce are crumbing down because of what she's found within New York, and although she came from such a low place, New York lifts her up on her feet again and uses them to walk and explore her new-found world of love and lights. By starting with her walking, a quintessential New York lifestyle, she discovers a passion for this effort, and needs space that will allow her to stride (figure 5.45), as it brings her inspiration to new pathways (figure 5.46). One can see through her books, window seals, staircases, parks, leaves, and even her atmosphere, that New York enchants her, drawing her in with every aspect it holds. Her body language in the window sill illustrates leisure and comfort with her silhouette surrounded by light (figure 5.47). The movement on the staircase

Light

"leisure and comfort with her silhouette surrounded by light."

Figure 5.47 Window Sill

"floating illusion through her extension"

No Confinement

Figure 5.48 Floating on Staircase

"New York has won this quest for her heart"

Home

Figure 5.49 I Am Home

leads to this floating illusion through her extension that is in no way confining as her previous movements were (figure 5.48). When she finally brings us to the chorus, we can clearly see the "I am home," phrase coming to the forefront, with the letters literally being spelled out right before our eyes (figure 5.49). The chorus is the section that tells us that New York has won this quest for her heart and has latched onto her permanently. She finally feels close enough to this place to lock in her love and make the ultimate commitment to New York. By being

remarried to this life, she found the core of her soul. Now “she is home”. The place has chosen Typhani, not the other way around.

When analyzing all of the pieces that Typhani created, there is a clear transformation from light to dark. Looking back on the experience that caused her to leave Los Angeles, she explains a feeling of wanting to be rid of it. Using this as inspiration for her house, the entry space or Resignation room is characterized by darkness and confinement. The ultimate goal is to create a space that instills a feeling of wanting to move on. The next space is the Crossroads, a point in the house that allows Typhani to choose an appropriate pathway for her current experiences.

From this point the entire house is characterized with a series of pathways and hallways. Walking through these various pathways, she is able to bring various site of the city into her home. The long hallways are an evolutionary aspect of her journey that she envisions. The walls are accented with various sized openings along the walls that open in to the scenery, New York, her one true love. The final element of these hallways are floor to ceiling sliding glass mirrors. These mirrors along the hallways will are capable of sliding the length of the hallway thus hiding and revealing various sites of the city. With certain configurations a mirror one wall can be slid right next to an adjacent opening. In this situation the opening is looking to one part of the city and the mirror is reflecting a different part of the city from the opposing wall opening. The space is capable of being completely customized so that Typhani can create a space that will Latch onto her and bring her back home. Depending on the discovery she needs to find for herself, the mirrors are the idea of two sides coming together for her clarity. By combining them on one side, it becomes her two eyes to the world.

Within these full length mirrors, Typhani foresees being able to write out

her ideas creating a vision board rather than just a wall which will further inspire her goals, choreography, future books, etc. while on the other side of the hallway, it would be a fluid stroll through her history by gradually creating a mapped out version of her life. The lights, or the “life” in the center of time square is where she draws her liveliness from, and although she does not want to be anywhere near the lights or the tourists, she would like them incorporated in her design so that she keeps that liveliness close to her heart.

Throughout the discussion of her design, Typhani senses an overwhelming theme of the city and all it has to offer. The focal point that she would like her views to oversee is the greenery as well as the dormant forms of nature such as Central Park. Central Park is central in her life, and therefore is important in allowing that view to become a main vista. A home that overlooks that space will create an area that will constantly inspire her. The sense of the park is her “New York persona”; a place where she can sit and depending on where she is sitting, will determine what she is writing or choreographing at that moment in time. It offers so many different stimuli and is so vast in space, someone could find something new within its realms every time they entered. Being near a park for this reason alone is important to Typhani, and if her design enabled her to do so, would be located right in the middle of the park. She understands that realistically this would be a rare opportunity, but as long as she is able to see the foliage from her multiple windows and mirrors, she doesn’t mind walking in order to get there.

This basic conceptual understanding was the endpoint for the Steps project. Even though it did not continue through the rest of the design process, these three phases help illustrate the clear defining vision that would have

5.2 Kayleeism

Figure 5.50 Kayleeism

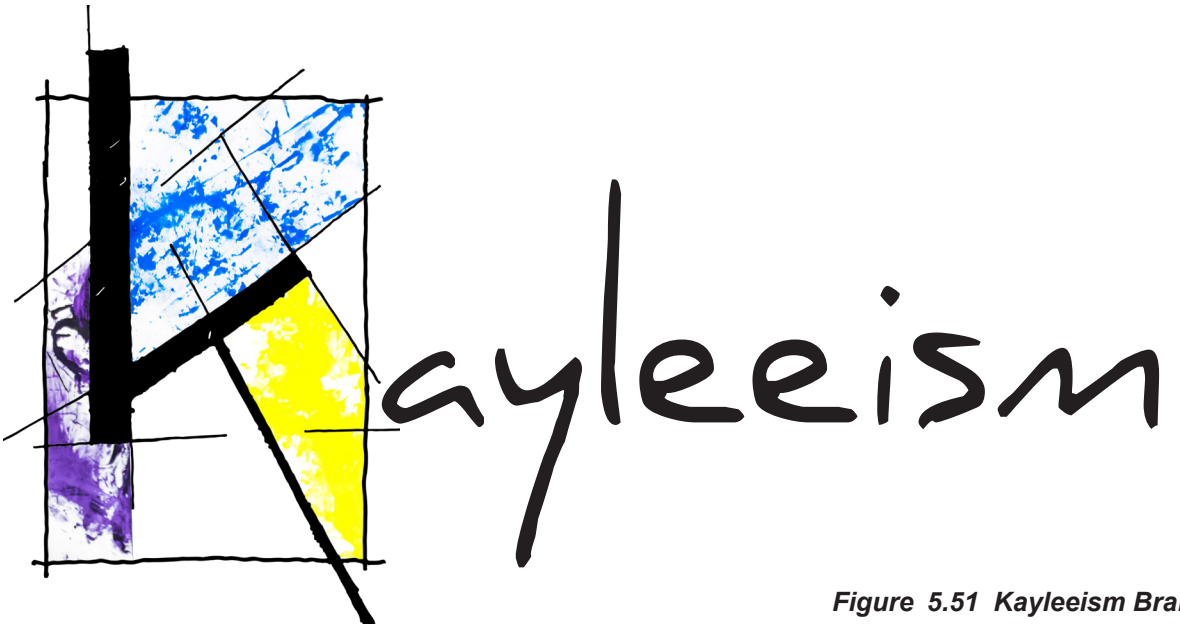


Figure 5.51 Kayleeism Brand

5.2.1 Kayleeism - Learning

Figure 5.52 User/Designer Spectrum - K.Y.

A brief introduction about yourself?

•I'm a dancer and a volleyball player

•I love making art

•My favorite movies are Journey 2 and Iron man 3

•My favorite actor is Dwayne Johnson or known as the Rock

•I love action adventure movies

•I love hanging out with family and friends

•I like to up-cycle old clothes

•I like to ride bikes

•I hate science but, like math

•My favorite color neon green

•My favorite food is Mac n' Cheese

What are some significant experiences that have shaped you?

What is a house to you?

I think a house is a like a dance academy because you eat, sleep, and then you learn something new every day. It's like every time you go to dance class you learn new choreography or it's like when you go to school you read books and you get information. Also, I think a house is a place where you sleep, eat, and live. I think my dream house would have a chef kitchen, 4 stories but to get to the stories you use an elevator. There would be a spa and a pool in the

backyard, a huge living room with a flat screen TV and a beautiful dinning room. There would be 4 rooms in the house. The first room would be a video game room/ math room; the second room would be my room; the third room would be my sisters room, and the fourth room would be my mom and my dad's room.

> *"a house is like a dance academy because you eat, sleep, and then you learn something new everyday."*

Figure 5.53 Text Quote - K.Y.

Conclusions made during Learning

Of the three initial questions the hardest for Kaylee to comprehend and understand is the second question, more specifically in regards to significant experiences. Discussing this question a little deeper, Kaylee was able to describe one significant experience. She described a moment in class when she farted while reciting the national anthem. When asked how she felt about this experience, she described a feeling of excitement because it made the other children laugh.

The most important aspect about the retelling of this experience was that Kaylee was dancing the entire time while telling the story. Recalling her answer to the third question, learning something new every day and dance, it became apparent that dance is not just something that Kaylee enjoys, but it is her way of internalizing her experiences of the world. Following up on this theory, a discussion ensued about how often Kaylee dances and what she thinks about when she dances. Kaylee replied that she dances when she is happy which is mostly all of the time. For Kaylee, happy emotions are easy to understand and comfortable to express externally. This raised the question, how does Kaylee respond to unfamiliar experiences or emotions? In discussing this question, she gave many answers, but the most pertinent was the importance of art. As she further explained her fondness for creating art, she also

explained that she creates most of her art in a private place.

Out of this initial discussion came the conclusion that Kaylee uses art and dance to understand and to express her experiences and emotions. The familiar emotions and experiences are expressed with dance while art is her method for understanding the unfamiliar experiences.

Moving forward Kaylee decided that she wanted to continue the process using art and dance. In preparation for ring 2, Kaylee picked three songs that are used during the rest of the design process.

5.2.2 Kayleeism - Decode

Figure 5.54 Bang Bang

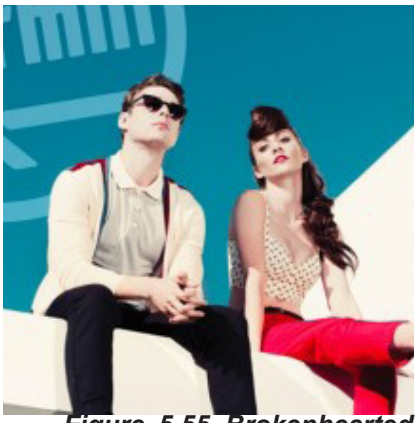


Figure 5.55 Brokenhearted

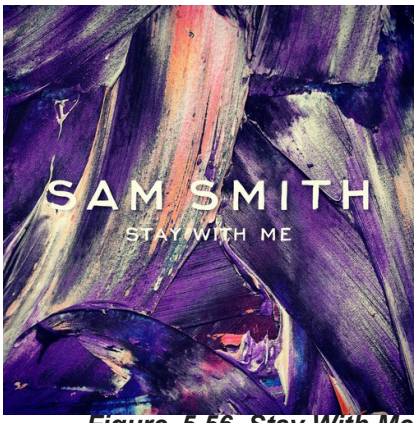


Figure 5.56 Stay With Me

The decoding of ring two happened in two parts. The first part was an analysis that dictated the structure of the design process. The second was an analysis of the site, which helped determine the programme of the house.

Continuing on from ring 1, Kaylee explained her first artifact, the three songs she picked. Kaylee discussed how she chose each song for the emotion it reminds her of. She also explained how each song is associated with a specific color for her.

The first song is, “Bang Bang,” by Jessie J featuring Nicki Minaj and Ariana Grande. Kaylee chose this song specifically because she always wants to jump around and dance ecstatically whenever she hears the song. Associating this song with a happy emotion, Kaylee also described how the song reminds her of the color yellow. For Kaylee the color yellow evokes a bright happy state of mind.

The second song she chose was, “Stay With Me,” by Sam Smith. Being a slower broken-down song, Kaylee explains that it reminds her of sadness because it is about a man pleading for his lover to stay, but ultimately becoming heart broken. For this song Kaylee chose the color purple.

For the third song Kaylee wanted a song that incorporated both happiness and sadness. To Kaylee the song that represents happy but sad is, “Brokenhearted,” by Karmin. Describing this song, Kaylee explained that it tells a sad story but has an upbeat tempo which makes her want to dance around similar to “Bang Bang.” For this song, she chose the color blue, because she felt that blue has a lightness that is similar to yellow, but it also has a dark tint similar to purple.

For the second artifact, Kaylee created three different paintings. Each painting incorporated one song and the corresponding color. Different from conventional paintings where artists use paintbrushes, these paintings were created using Kaylee’s feet. While the music was played, Kaylee danced and let her feet do the painting (see figure 5.57 - 5.59).

Analyzing the paintings that she created, Kaylee was able to outline a process that would guide the remainder of the design. Using a systematic approach, Kaylee wanted to create an art piece based on a series of rules.

During the latter part of the decode ring, Kaylee discussed her analysis of the

Figure 5.57 Happy Dance Painting

Figure 5.58 Happy But Sad Dance Painting

Figure 5.59 Sad Dance Painting

Los Angeles. Rather than focusing on the specific site Kaylee analyzed the entire city with respect to aspects of Los Angeles that she relates to each of the emotions. These aspects are the seasons, the freeways, and the violence.

Analyzing the happy feeling of Los Angeles, Kaylee quickly describes the changes in seasons. Kaylee likes the change in seasons that Los Angeles encounters. She is able to go to the beach during summer, loves the change in colors during fall, and likes wearing comfortable winter clothes. Spring is the one season that has characteristics of the other three seasons.

Kaylee associates freeways to Los Angeles because when you drive you are most likely taking a freeway somewhere. When she sees a freeway she is reminded of Los Angeles where she grew up, but at the same time freeways make her sad because she does not like sitting in Los Angeles traffic. When she visits new

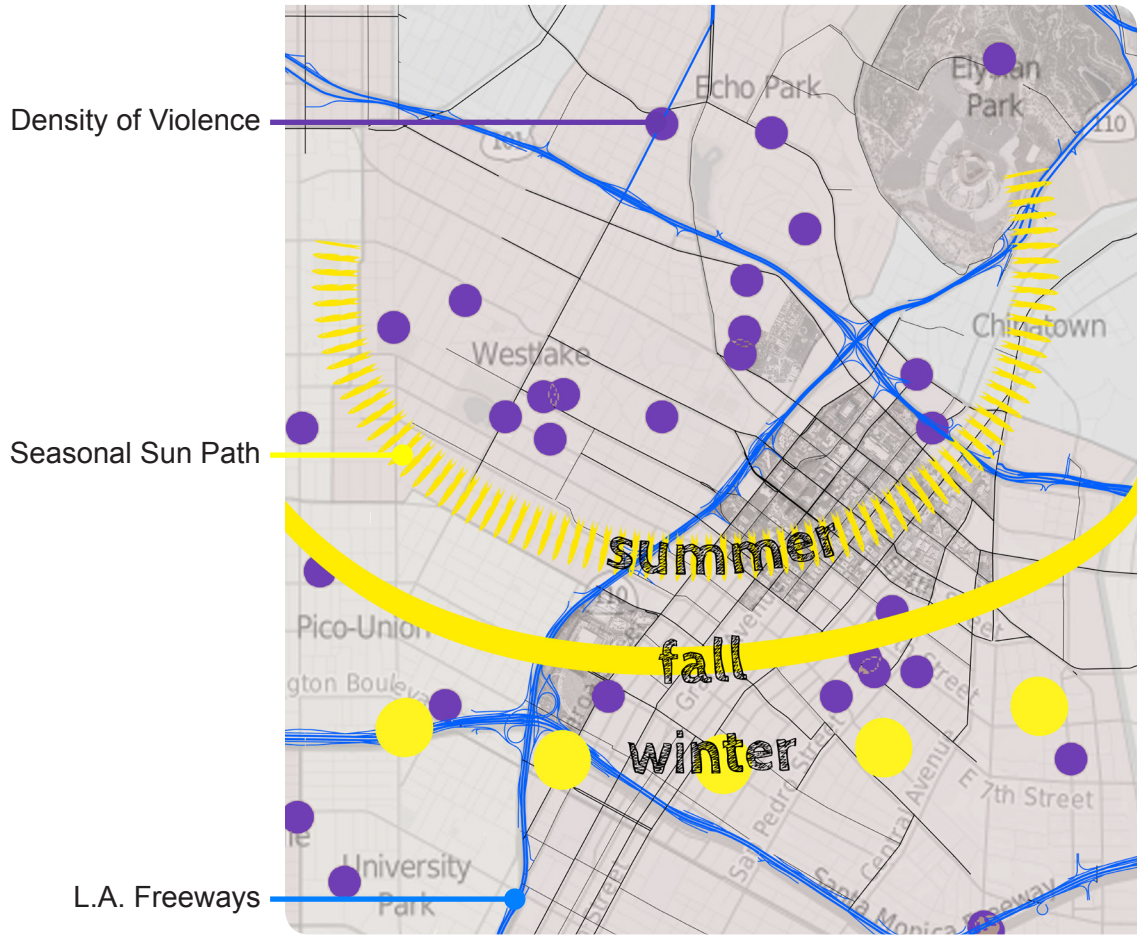


Figure 5.60 Kayleeism - Site Analysis

places she always compares the freeways and the traffic to Los Angeles.

On the news there is always at least one story of violence everyday in Los Angeles. The violence makes Kaylee sad because she wants the world to be a peaceful place. From the entire analysis Kaylee was able to extract the programme for her house.

The first type of space is the Violence room. Explaining further her analysis of the Violence of Los Angeles, Kaylee described how violence, while it is a dominant trait of Los Angeles occurs only at face value. Digging deeper into the characteristics of Los Angeles, there are much deeper more attractive qualities about Los Angeles. Rather than being a room inspired by violence, The entry room is a gateway separates the happy experiences of the house from the violence of Los Angeles. Furthermore the violence room is a space where all of the family can come together for celebrations and feasts.

The seasons correspond to the bedrooms for her family. The Summer room is designated for Kaylee as the master bedroom. Kaylee's sister was born in September and therefore the Fall room is for Aaliyah.

Kaylee associates her parents room to Winter because there room is always dark. Because Spring time in Los Angeles has a bit of every season, the Spring room is not dedicated to any one person but for every kid in Kaylee's extended family. Kalyee also explains that Spring room is the passageway to the Summer, Fall, and Winter rooms.

The last space is the Freeway, which corresponds to the happy but sad room. The Freeway is intended to be a space where Kaylee can process new emotions and experiences in the form of art and dance. Private to only Kaylee, the Freeway is a personal dance and art studio.

Figure 5.61 Kayleeism - Programme

5.2.3 Kayleeism - Invent

Kaylee experiences the world in two ways, Dance and Art. Dance and Art as two separate entities are how Kaylee expresses the experiences, feelings, and emotions that she is comfortable with. When Dance and Art come together Kaylee begins to internalize and process the emotions and experiences that are new to her.

> *"Kayleeism is a systematic exploration of new experiences through the combination of dance and art"*

Figure 5.62 Text Quote

The concept design of Kayleeism is a systematic exploration of new experiences through the combination of Dance and Art. The process explored throughout the design of the house is an exact replication of how the Freeway will be used.

The process began with an existing art piece. Driving home one day Kaylee saw an art canvas sticking out of a dumpster (see figure 5.63). She then decided that throughout this process she wished to take this existing piece of art and evolve it into her own piece of art. After examining the art piece, Kaylee determined that the creation of the new art piece had to adhere to some basic rules. Along the way new rules could be added but no rule could ever be taken away.

From the beginning, the main rule above all was that music had to be playing during the creation of art.

Further studying the existing art piece, Kaylee decided because of the qualities reminiscent of cubism, she wanted to have an art piece that had a similar appearance to cubism. The transformation began with Kaylee adding white paint onto the canvas. The new white paint only covered areas of the existing painting that were less intriguing to Kaylee (see figure 5.64).

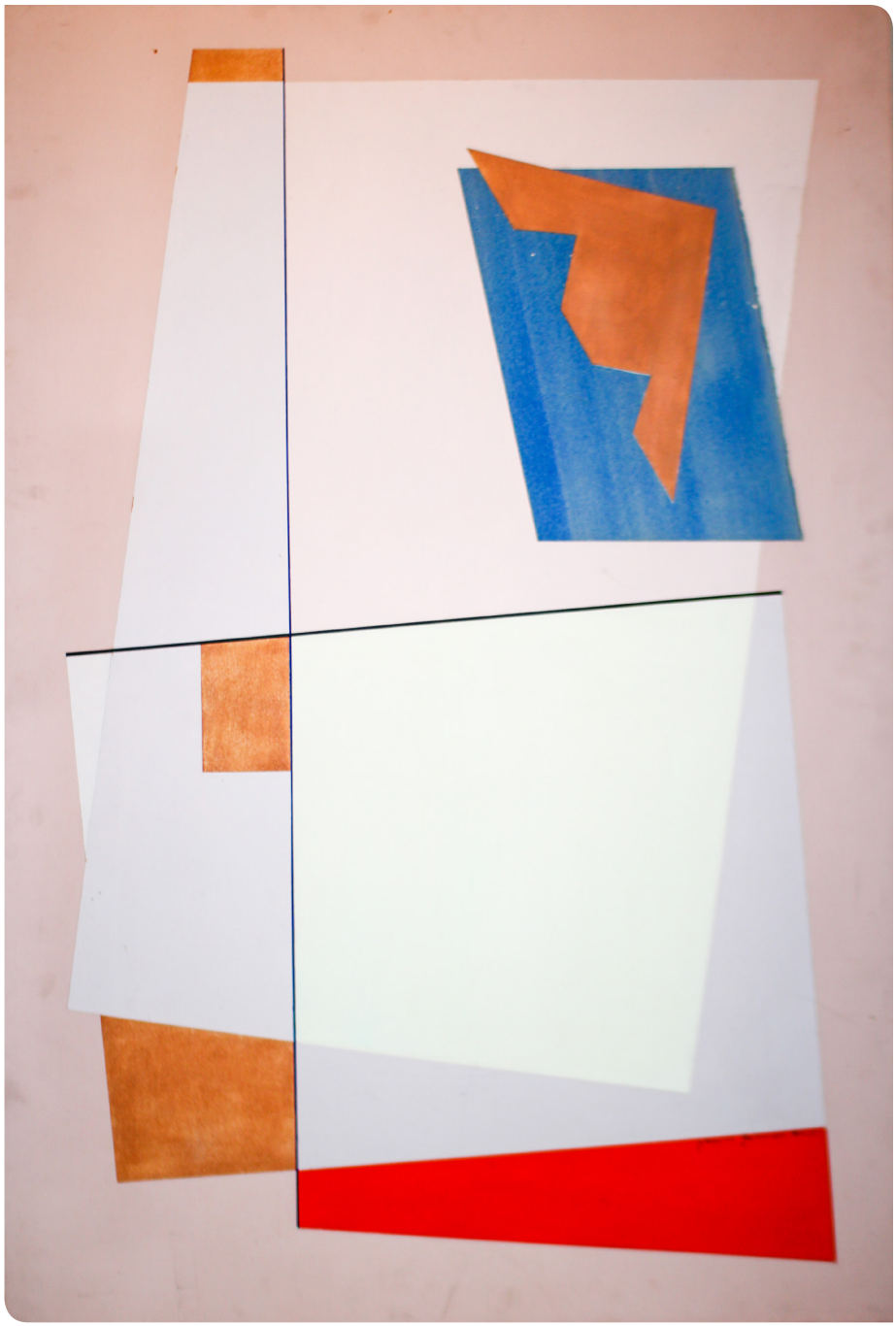
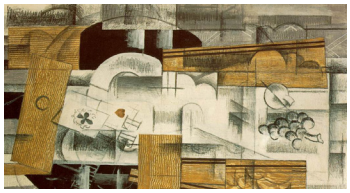


Figure 5.63 Original Art Piece

1. original art piece



Similar traits reminiscent of cubism art style

Figure 5.64 New Canvas

2. new canvas

Rules:

Using white paint cover areas that are least attractive.

At the next step Kaylee decided to add black lines with thicknesses that coincided with the type of song being played (see figure 5.65). For example, when the song, 'Bang Bang," played (a happy song) Kaylee drew lines with the thickest marker. During the song, "Brokenhearted," (happy but sad song) Kaylee used a medium tip marker. Lastly while "Stay With Me," played (sad song) Kaylee drew lines with a thin tip marker.

Another level of complexity was added to this process with a recursive line order. The first two lines had to be derived from existing lines on the original art piece and the third line could be a completely new line. This ensured that Kaylee was constantly analyzing the lines that she drew as well as the lines she will draw.

After completing the process of adding lines, Kaylee determined three areas on the canvas that would be filled with color. A middle area for happy but sad and two side areas designated for happy and sad. Rather than just simply filling in the regions with colors Kaylee decided that she wanted to utilize the dance paintings she created earlier. Cutting out areas of the dance paintings, Kaylee determined another rule to implement. The yellow color (happy) could only touch the blue color (happy but sad). The purple color (sad) could only touch the blue color. This meant that the yellow and purple colors could never be directly adjacent to each other (see figure 5.66).

In the final step Kaylee made the art piece three dimensional by adding strips of white mat board to the art piece (see figure 5.67). Applying the same rules that governed the black lines, the heights coincided with the song and the addition of lines followed the same recursive pattern of two existing to one new.

Concluding ring three, Kaylee explored various conceptual diagrams that ultimately turned into a conceptual floor plan. This process began with reviewing the programme determined from the site analysis.

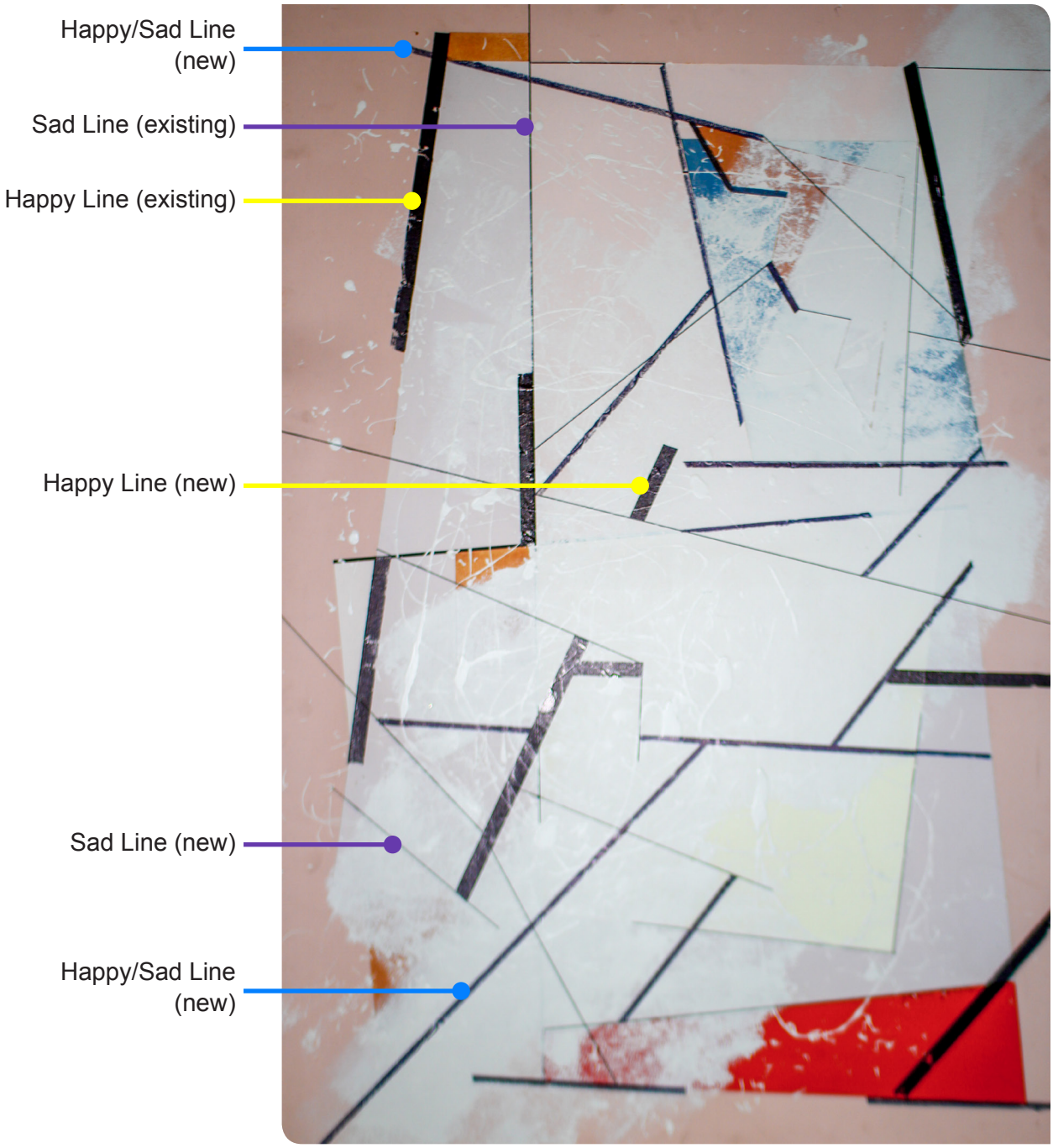


Figure 5.65 Black Lines

3. black lines

Rules:	**Draw Order:**
Thick Line for Happy song	2 Existing Lines
Medium Line for Happy/Sad song	1 New Line
Thin Line for Sad song	

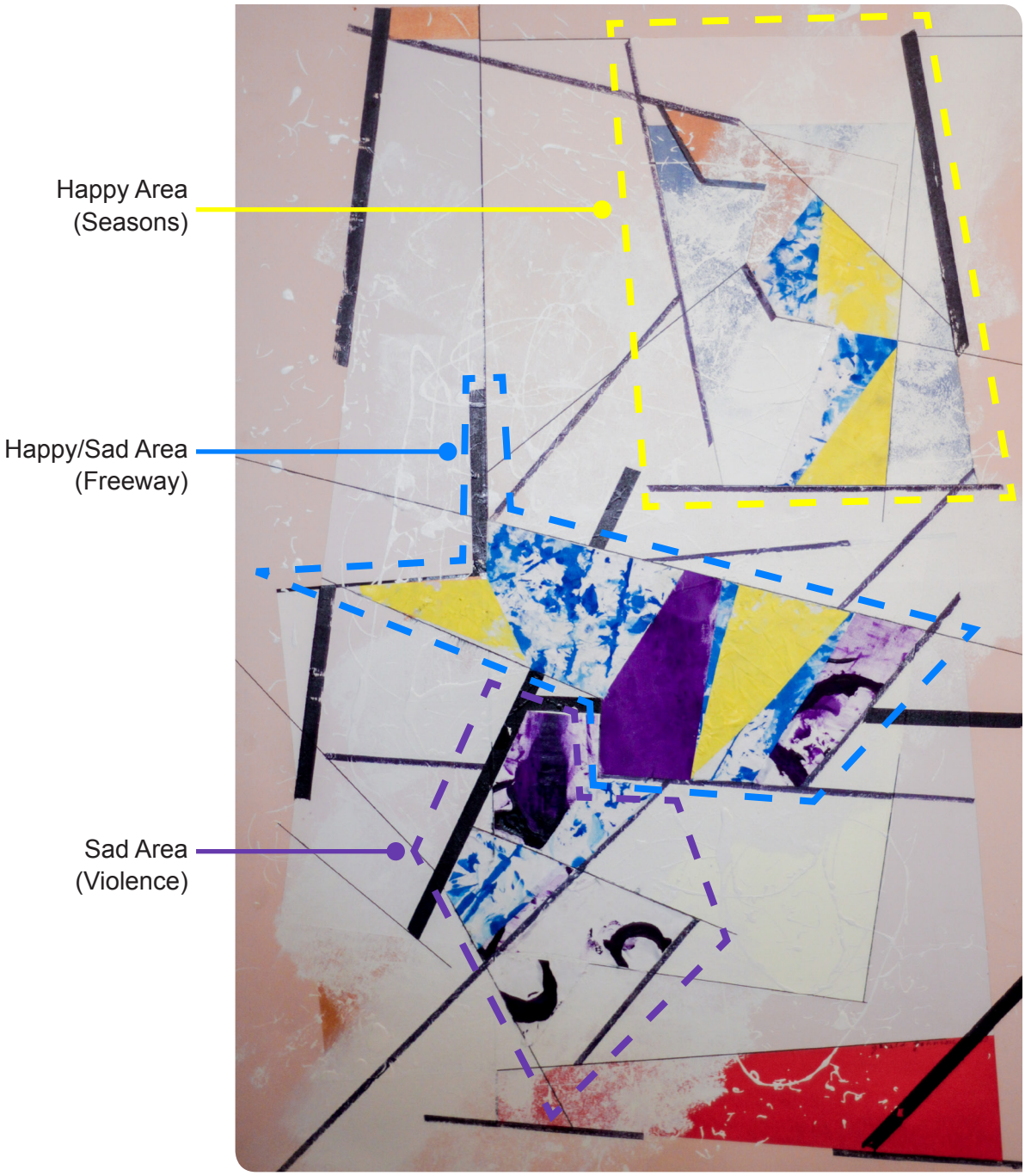


Figure 5.66 Color Infill

4. color infill

Rules:

Blue can touch either purple or yellow

Purple and yellow can never touch

Figure 5.67 Final Art Piece

5. final art piece

Rules:

Tall strip for Happy song

Medium strip for Happy/Sad song

Small strip for Sad song

Draw Order:

2 Existing Lines

1 New Line

Kaylee then analyzed the art piece and extracted areas that she felt best fit each programmatic space. After pulling out the various pieces, Kaylee conducted a series of studies to simplify the extracted areas. Finally Kaylee organized, grouped, and reordered these studies to determine a conceptual floor plan.

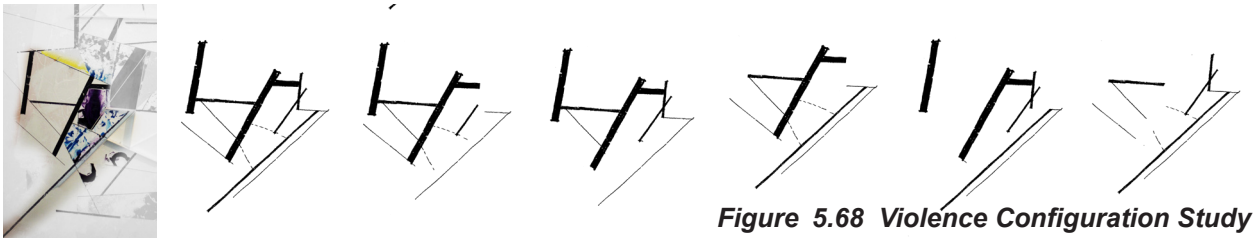


Figure 5.68 Violence Configuration Study

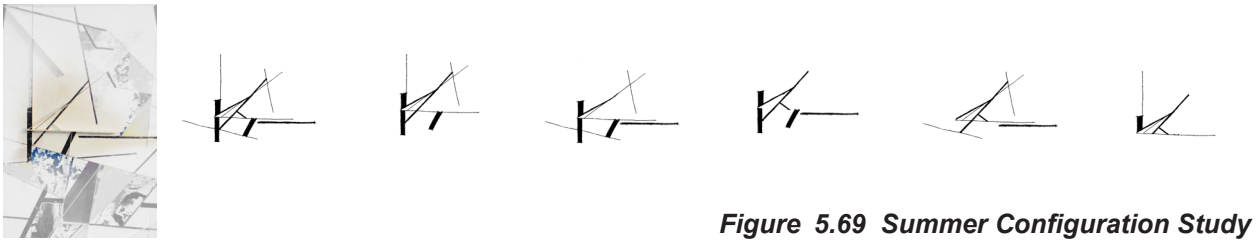


Figure 5.69 Summer Configuration Study

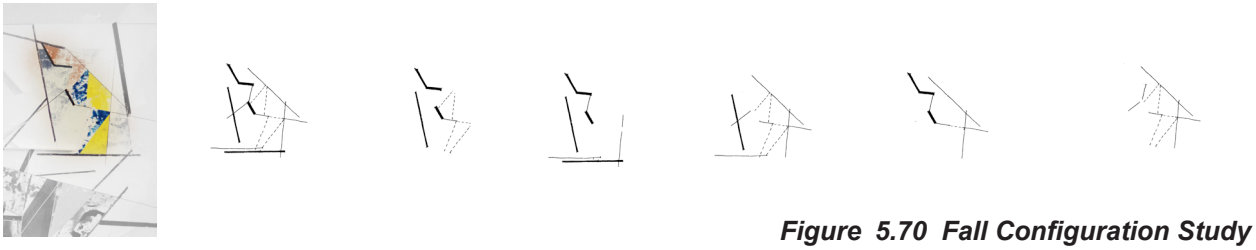


Figure 5.70 Fall Configuration Study

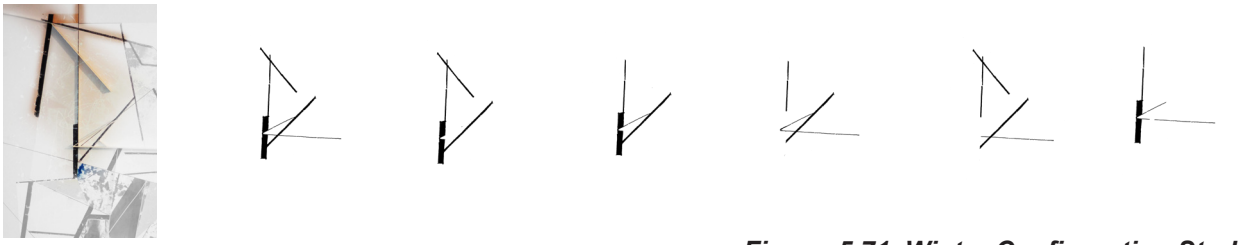


Figure 5.71 Winter Configuration Study

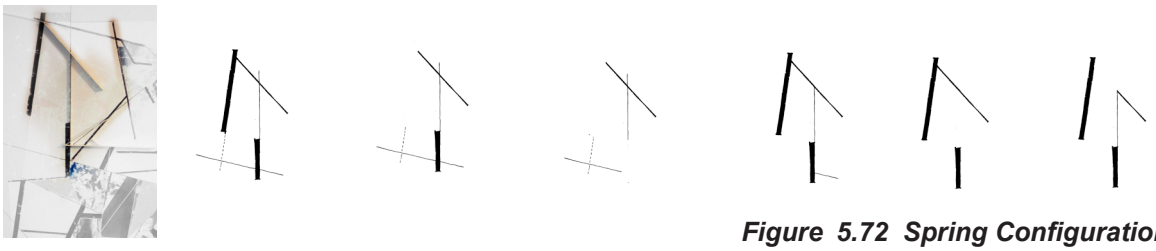


Figure 5.72 Spring Configuration Study

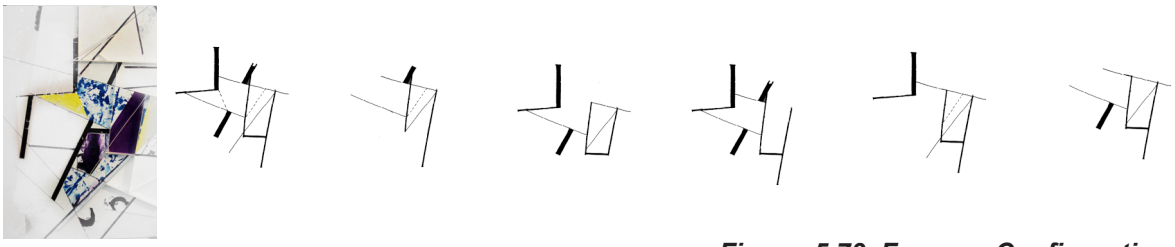


Figure 5.73 Freeway Configuration Study

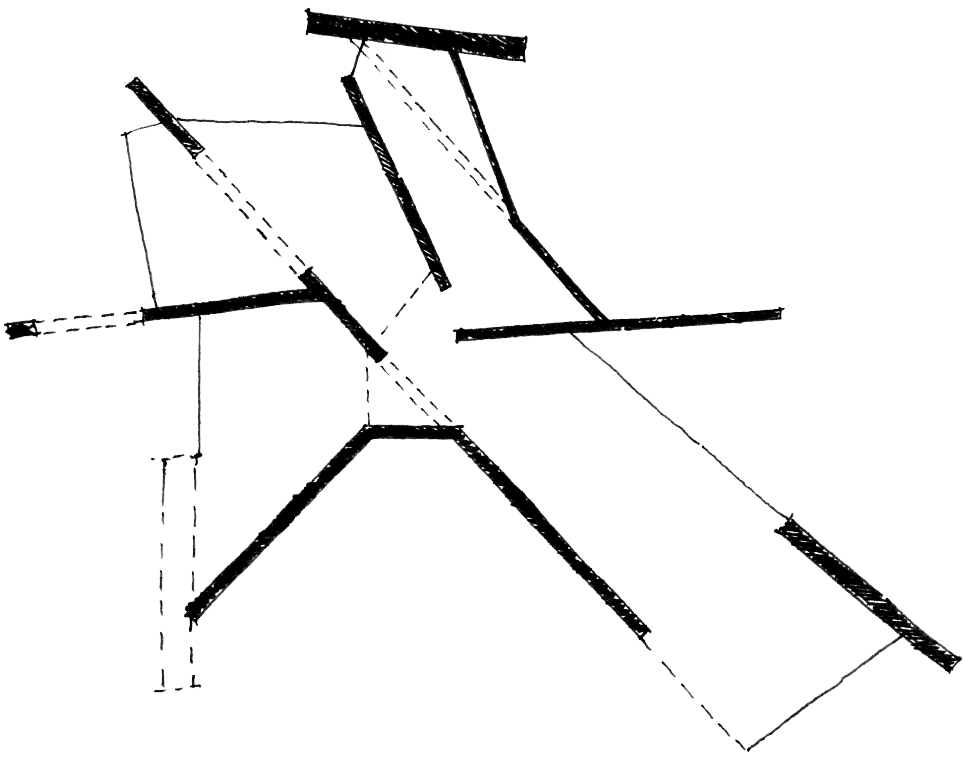


Figure 5.74 Kayleeism - Concept Plan 1

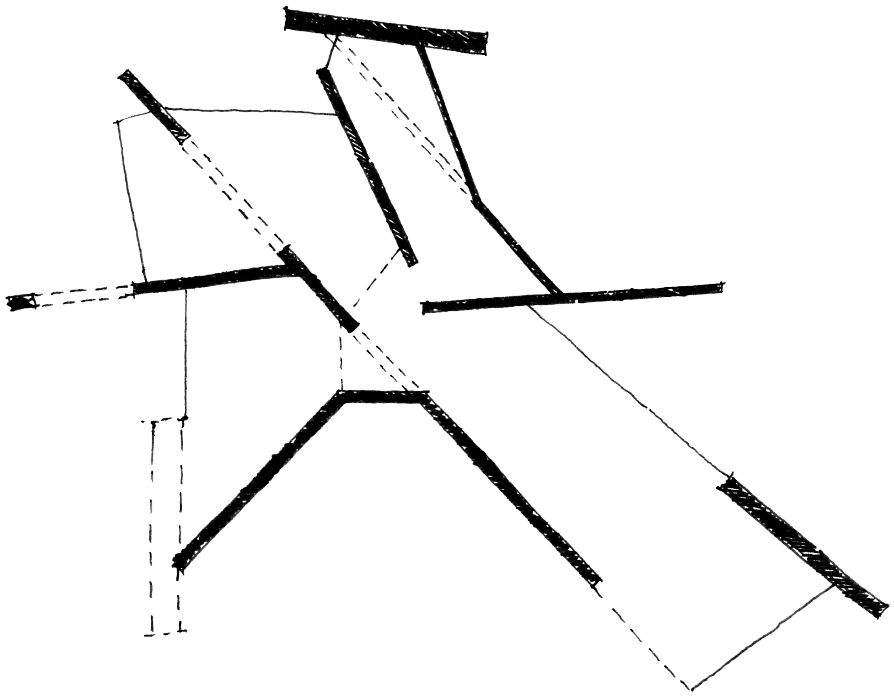


Figure 5.75 Kayleeism - Concept Plan 2

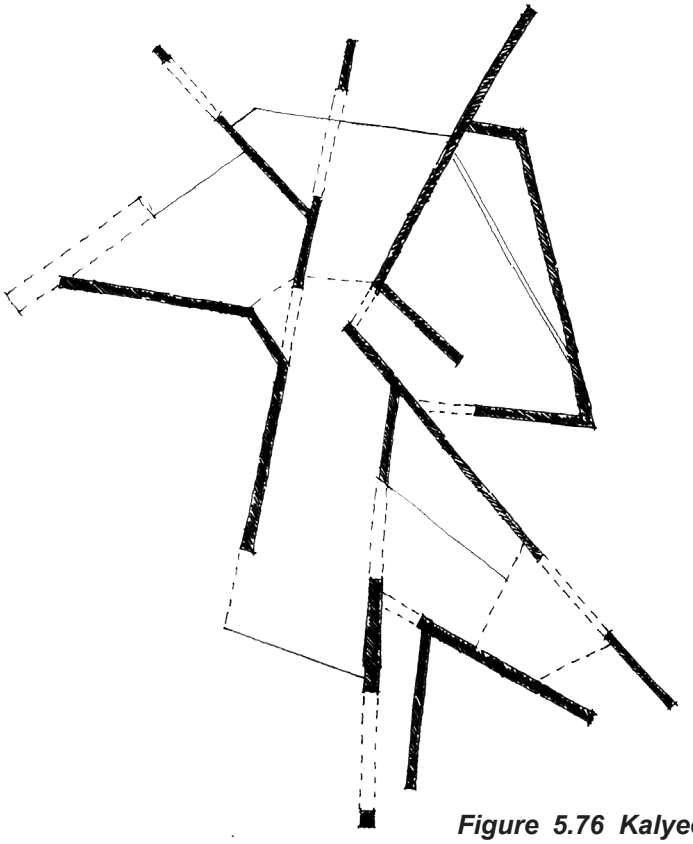


Figure 5.76 Kalyeeism - Concept Plan 3

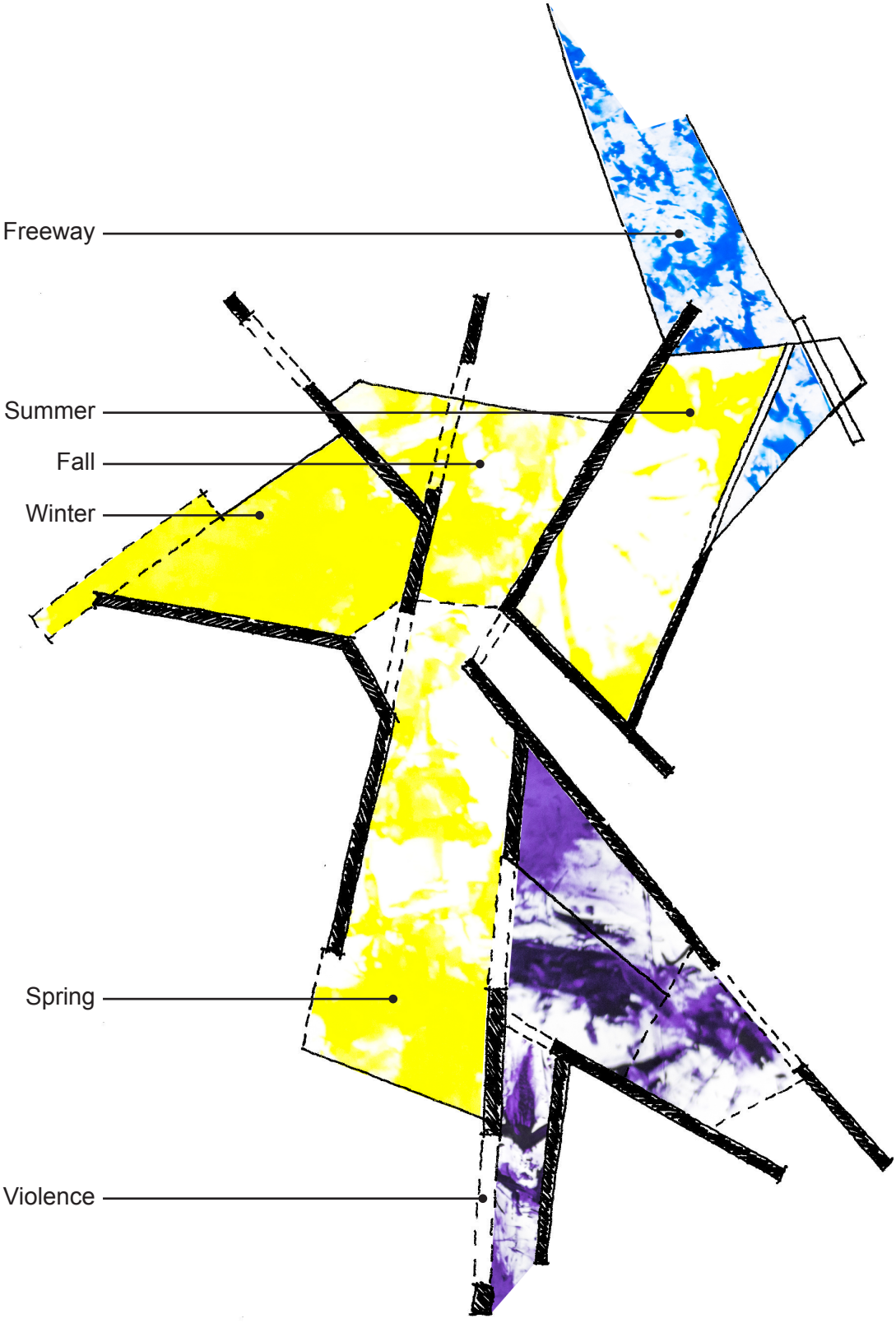


Figure 5.77 Kayleeism - Final Concept Plan

5.2.4 Kayleeism - Transpose

By the start of ring four all of the driving parameters of the project have been established. Building on the previous ring the goals for this stage are to first gain a better understanding of the evolutionary characteristics of the house. Secondly, for this stage it is most important to move forward with the design of the house further developing the conceptual floor plan into a more understandable architectural solution.

Kaylee already determined early on that the Freeway is a personal room for her to take in and personalize her experiences. Already understanding that the Freeway room is used as an evolving art gallery and dance studio, Kaylee expressed an interest to conceptually incorporate the dance painting idea into the room.

Discussing this further there are three strong conceptual ideas that Kaylee wanted to utilize in the house. First, the floor of the Freeway room would be constructed of LED floor panels. Ultimately the LED floor panels are synchronized to a central music system that allows Kaylee to play songs of her choosing. Depending on the type of song, happy, sad, or both the lighting of the floor would change. Beyond just changing colors, the lights would also visually set the mood and atmosphere.

Pushing this idea a step further, a discussion began about having a system setup that responds to Kaylee's mood habits. For example, depending on what types of songs Kaylee chooses to play at any given time, an algorithmic computer system will attempt to predict what type of mood she is in, based upon previous behaviors. The computer system will then continue to play songs that are predictably best fit for Kaylee's current mood. Currently the Pandora music website utilizes a very similar predictive type of system. The major difference in Kaylee's system is that it will also be tied to the floor lights.

Combining these two systems,a predictive music program and a floor lighting system that reacts to music can potentially enhance the learning experience of the Freeway room for Kaylee.

Although these systems are not going to be specifically detailed and tested, conceptually they are sufficient design solutions.

Up unto this point, the art piece has been used solely to understand the design of the house in plan. Taking a small step back Kaylee did a quick analysis and study of how the art piece might inform the three dimensional character of the house. Trying multiple times and not gaining an entire feeling of success, Kaylee decided to take a step back as a designer from this point forward. Although Kaylee was not specifically exploring the design, she was kept close in the process so that she understood every decision.

Continuing forward with the design, there was one main guiding idea that helped to progress the house design. During the process of creating the art piece, Kaylee introduced an idea of drawing two existing lines and one new. This idea helped Kaylee to make suggestions about various connections throughout the art piece. As each new layer was added to the art piece, Kaylee was able to make new suggested connections. Using this idea the design attempts to create various layers and connections throughout the house.

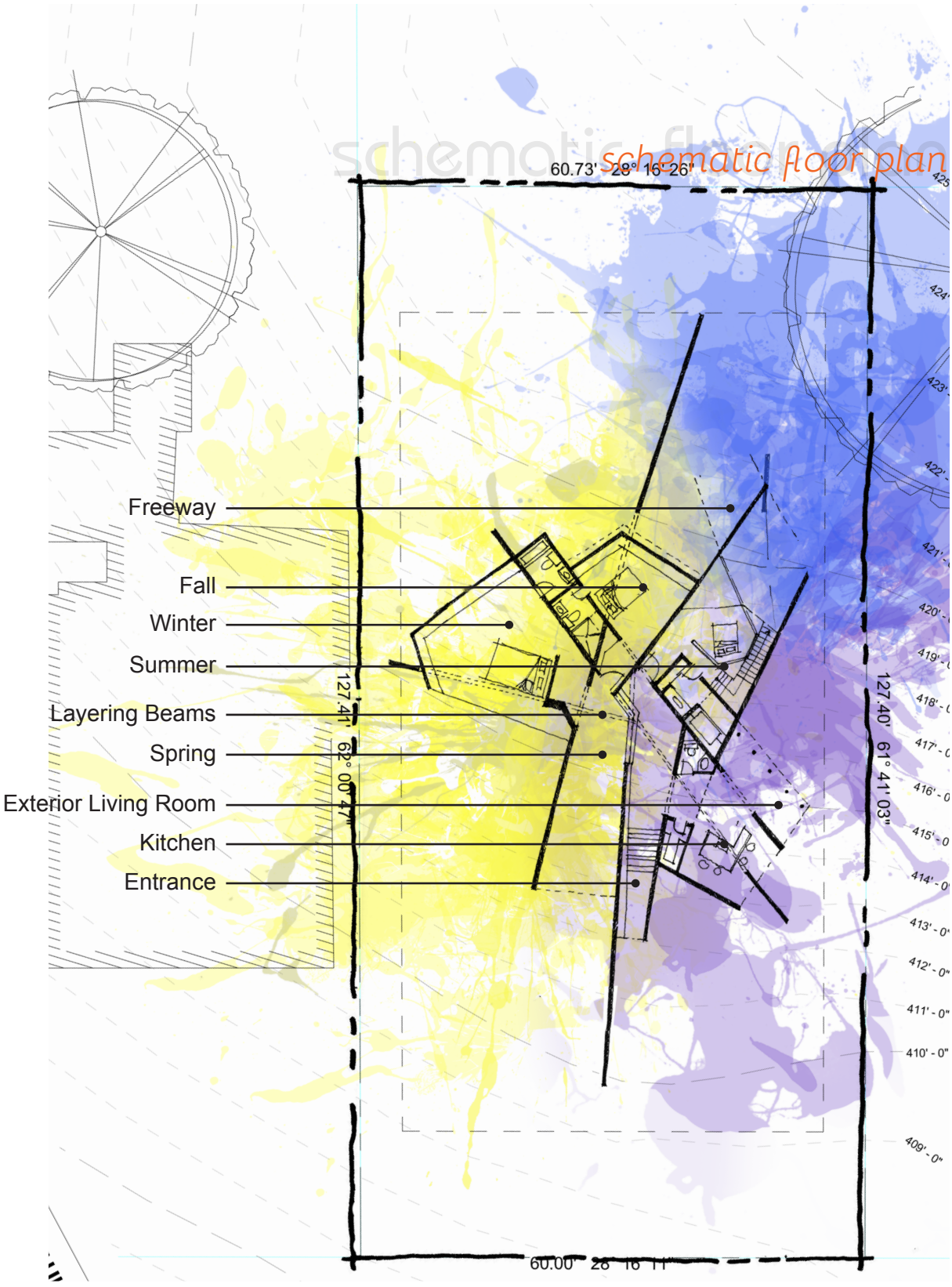


Figure 5.78 Kayleeism - Schematic Floor Plan

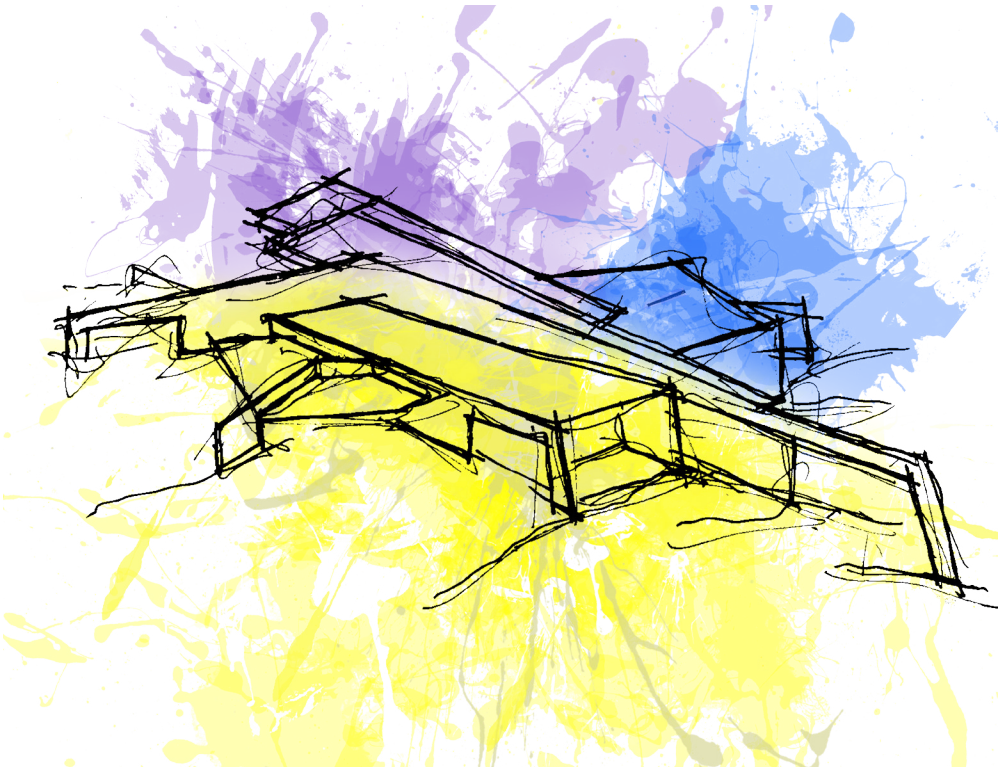


Figure 5.79 Kalyeeism - Schematic Front Perspective

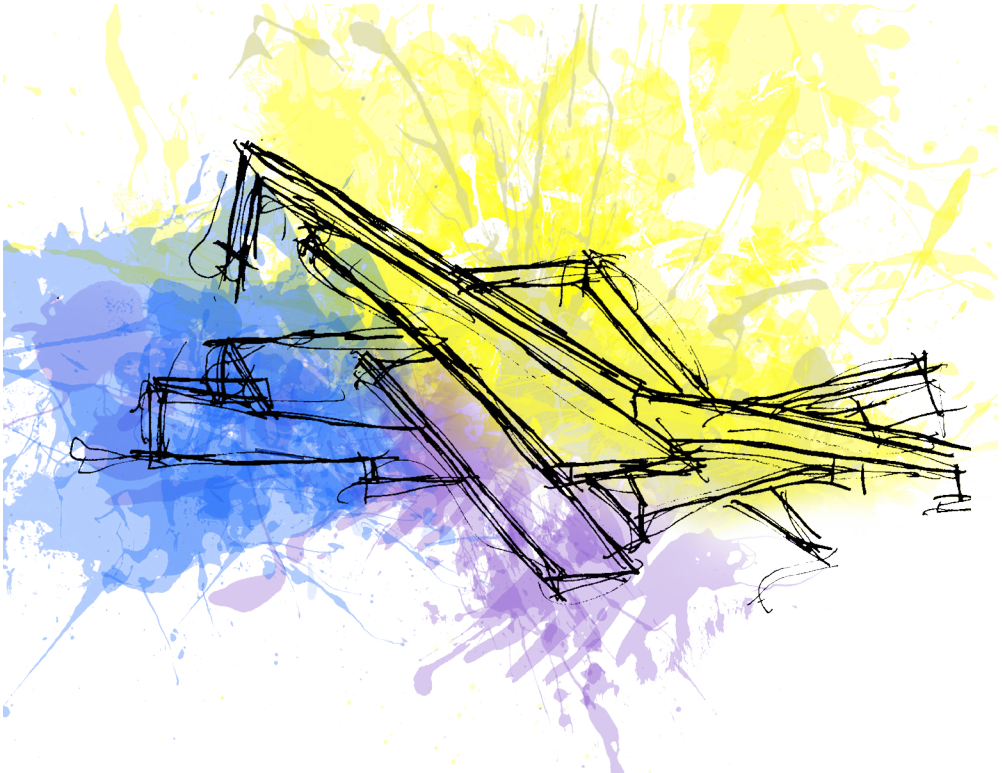


Figure 5.80 Kalyeeism - Schematic Back Perspective

5.2.5 Kayleeism - Transpire

Similar to the Vault, at this stage no new design changes were added to the house. This stage is primarily for fine tuning the design to align with the driving vision, goals, and parameters of the project.

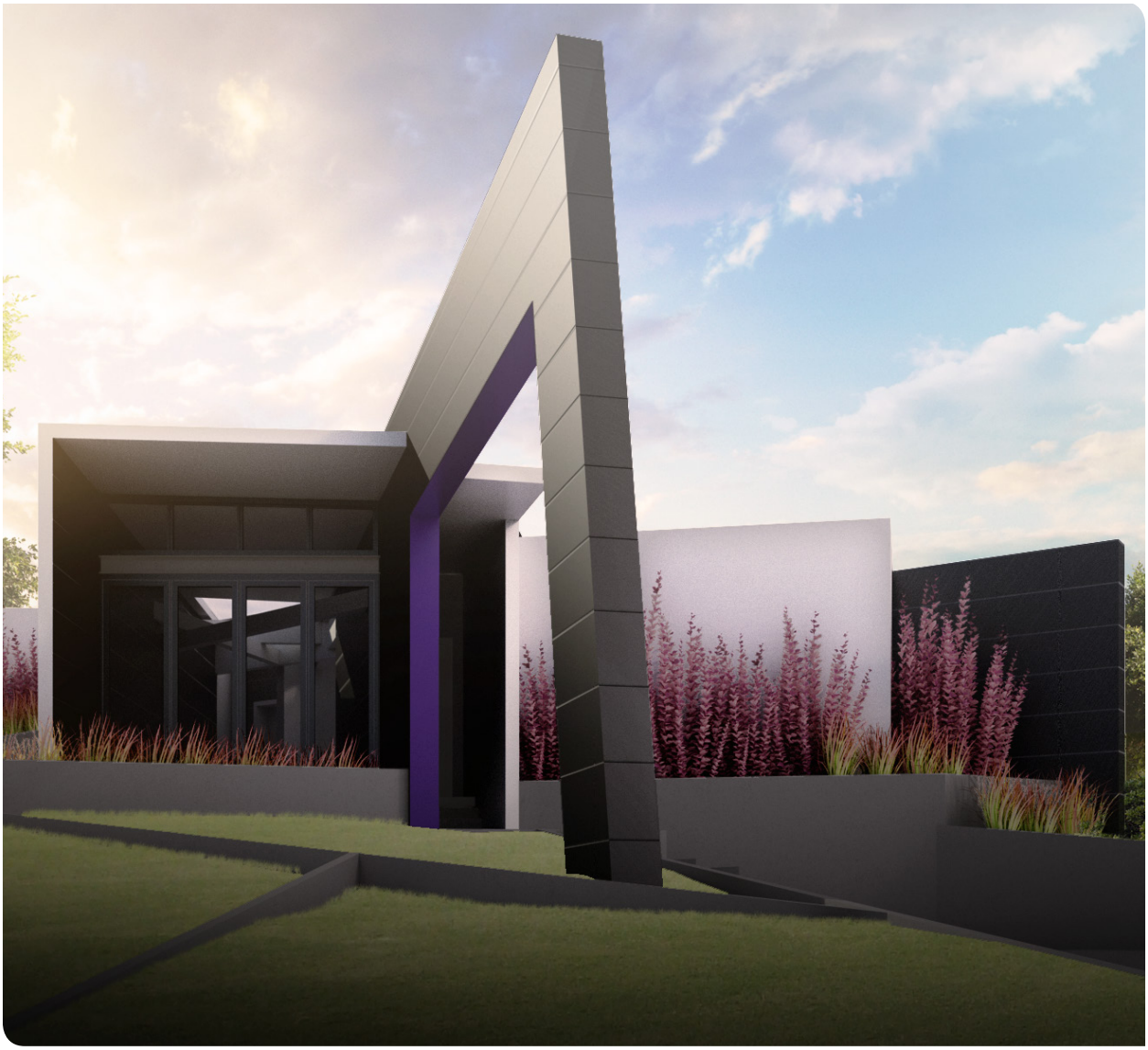
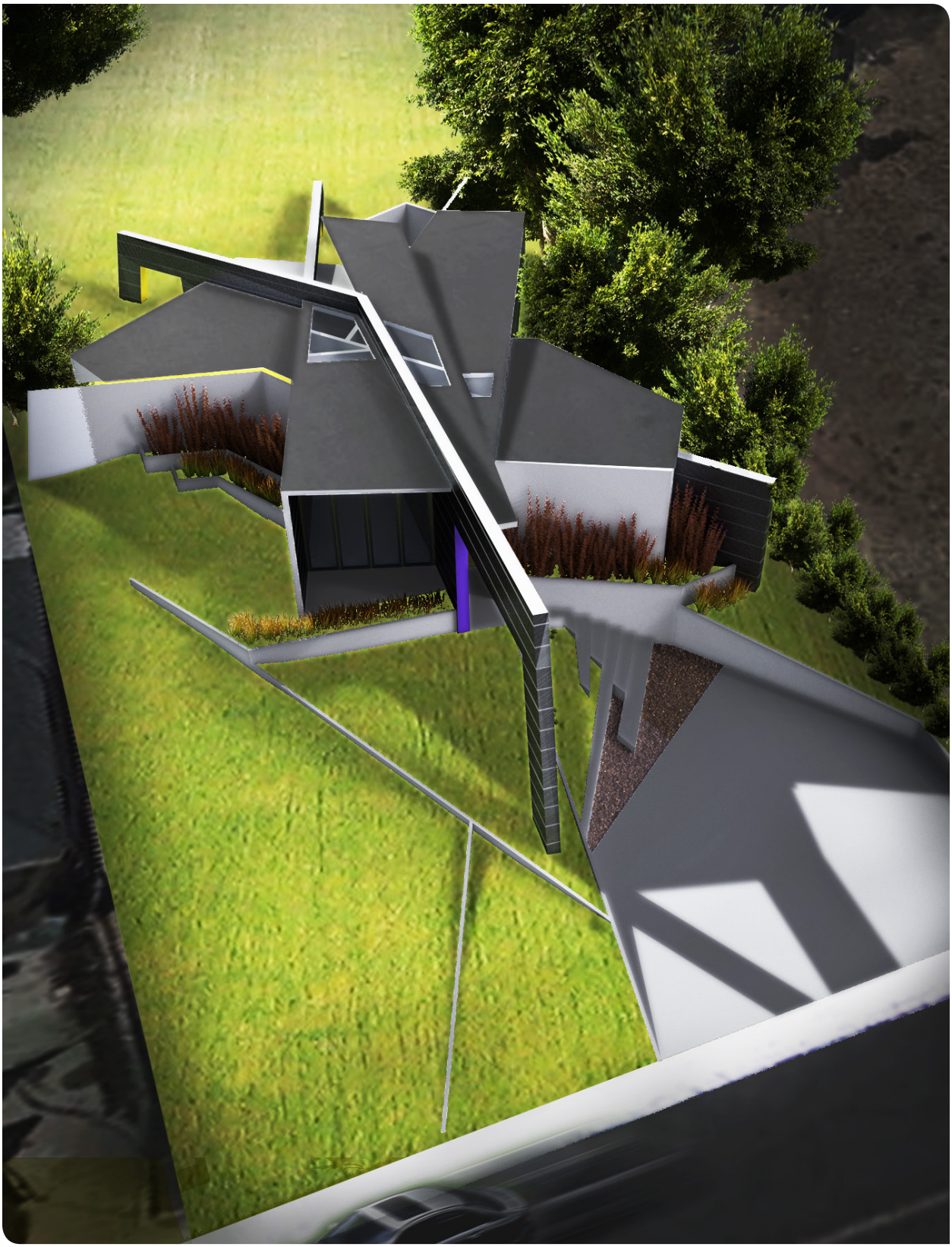


Figure 5.81 Kayleeism - Front Perspective



Kayleeism - Aerial

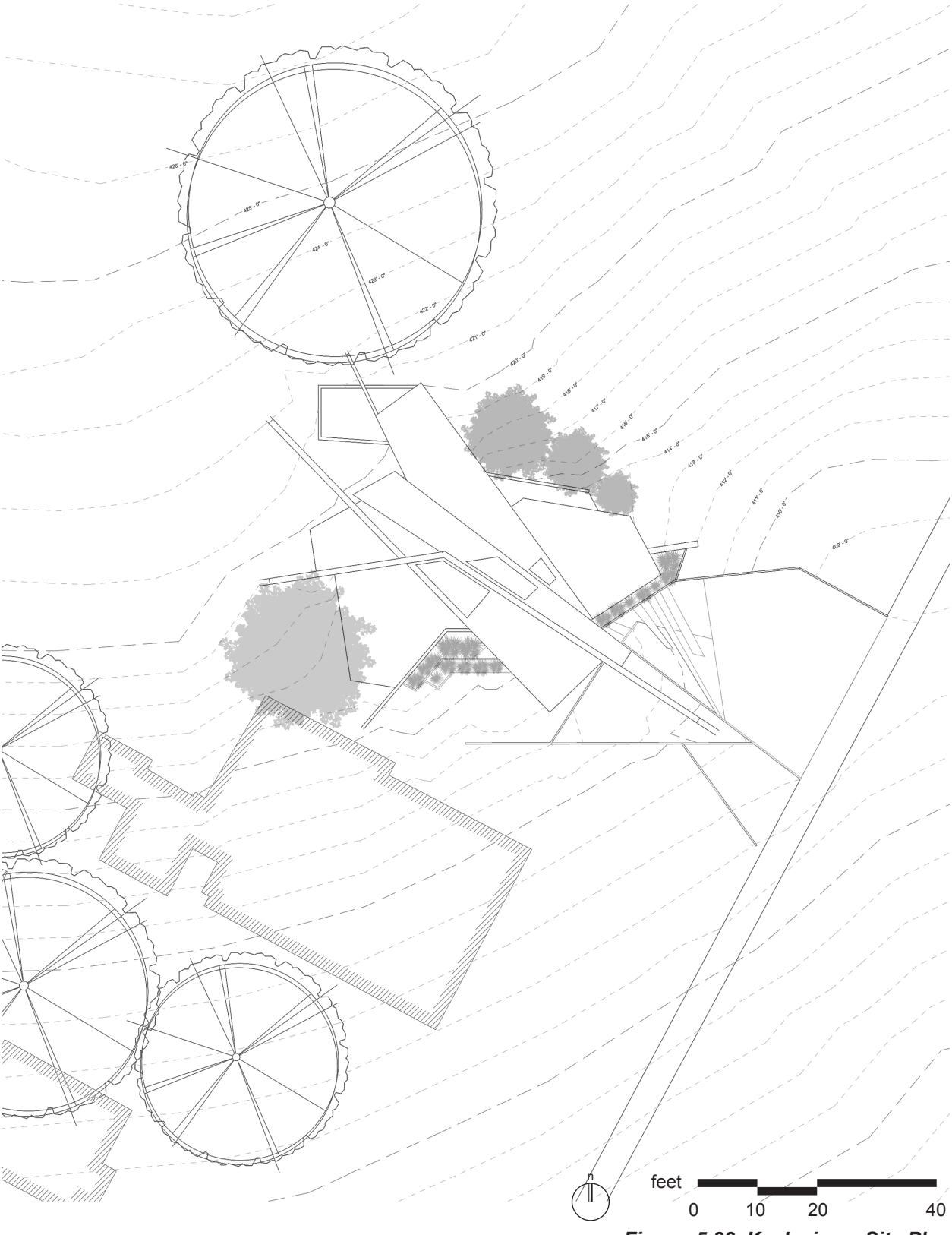


Figure 5.82 Kayleeism - Site Plan

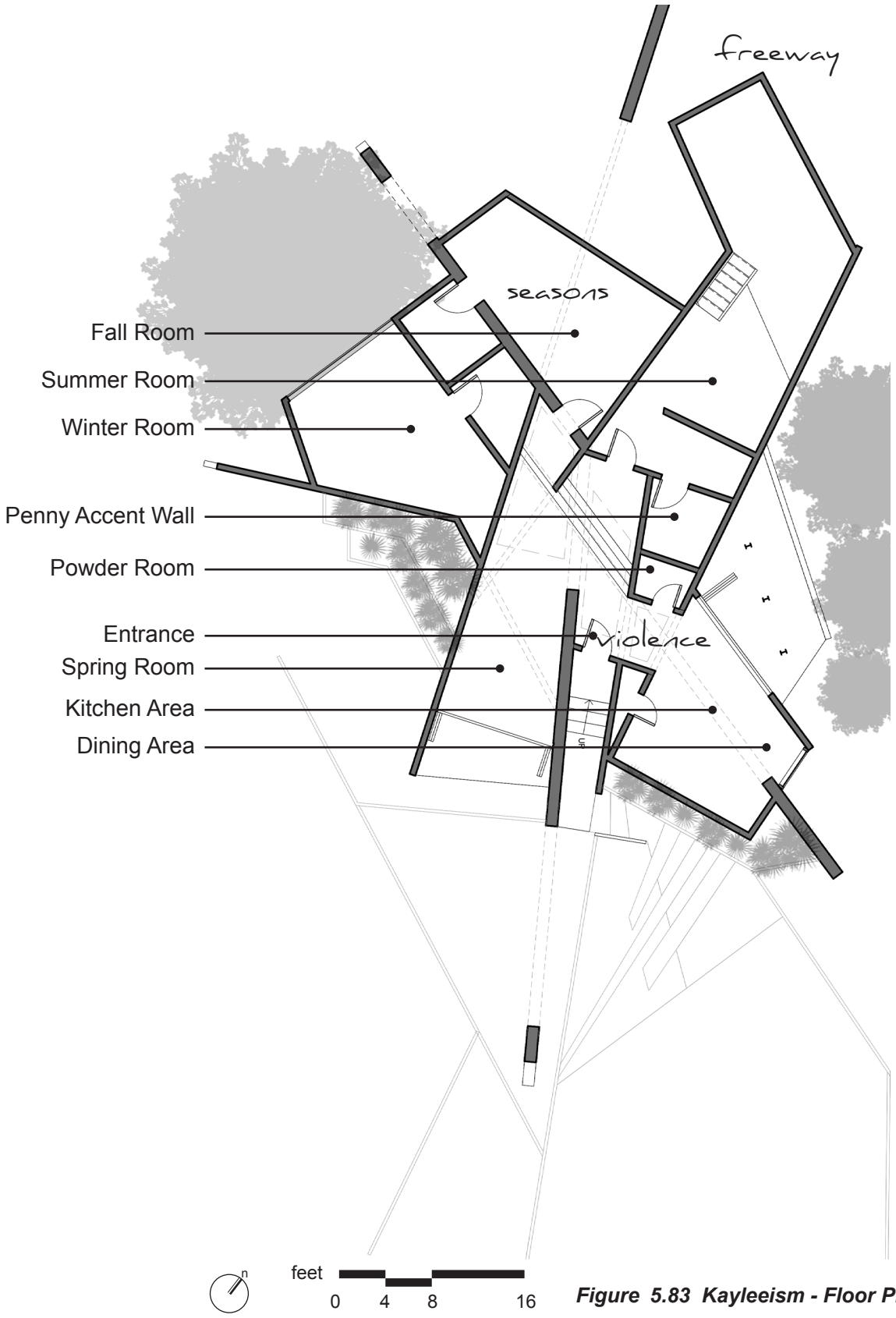
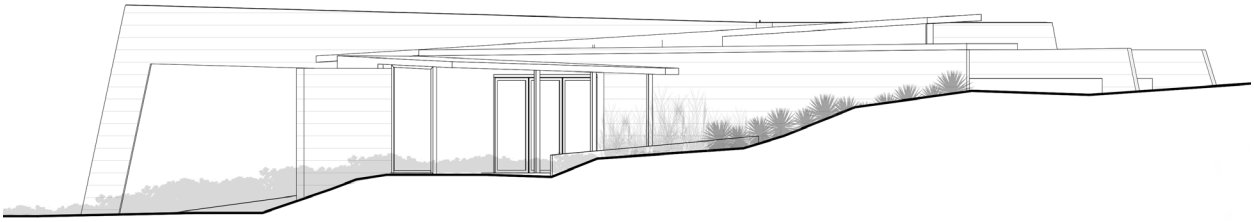
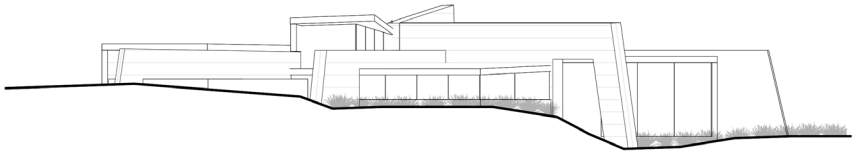


Figure 5.83 Kayleeism - Floor Plan

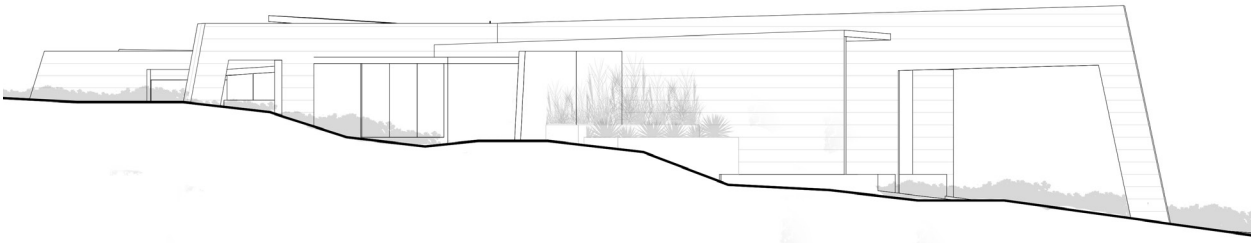
front elevation



right elevation



rear elevation



left elevation

feet
0 4 8 16

Figure 5.84 Kayleeism - Elevations

Figure 5.85 Kayleeism - Front Garden Perspective

Figure 5.86 Kayleeism - Composite Render

guided the remainder of the project.

5.4 Observations

From an overall standpoint each design experiment helped to support the hypothesis. A closer look at various qualities of each experiment show the benefits of an evolutionary design process. At the same time unpredicted aspects of the design methodology were revealed.

Before digging deeper into the experiments, it is important to note that the success of the projects really is credited to the dynamic test user group. As described in chapter 4, it was an important goal to have a test group that had similar experiences. As similar as the experiences were, the design projects successfully highlighted how each person values their experiences, even though similar, in very different ways. With regard to significant experiences, the experiments helped in understanding that the initial assumption which regarded each persons significant experiences as past experiences was inaccurate. It is easy to assume that a persons most significant experiences are past experiences. Kayleeism and Steps both showed that for some people the most significant experiences have yet to occur or are occurring presently. To that matter, all three projects proved the importance of having an evolutionary design process. During any design process inaccurate assumptions will be made from the beginning, but in these three experiments any inaccuracy had the ability of being fixed at any time throughout the process.

Contrast to the Vault, the design process of Kayleeism aimed at understanding and creating new experiences. Mainly because Kaylee is younger, many of her significant experiences are concurrently occurring. Therefore the intent of her house was to allow her to understand new experiences.

With Typhani, there was a mix of both. Recalling on past experiences, Typhani has a conscious understanding of how those experiences would affect her today. In finding a new place with new experiences Typhani was able

to see clearly how future experiences could benefit her. The concepts of her design were based around the idea of allowing Typhani to create and blend old experiences and new experiences.

In any case whether the experiences be past, present, or future, the strategy for creating a seamless translation of meaningful experience to meaningful design was by having the users create various artifacts. While this did prove to be an effective strategy for making that translation, a major question that occurred in all three projects was whether or not the artifacts portrayed experiences or values? It is a difficult question to answer mainly because in many instances the most significant experiences lead to important values in life.

In the Vault project, Justo began his coin collection while he was a child. As he grew older he closely associated his experiences with his coin collection. Ultimately his coin collection became more than a hobby or an experience, they became reminders of his values in life. Another more easily understood example is how Justo explains the experiences of his family gatherings. He explains the importance of those experiences, but understanding him deeper, the reality is that he lives for his family and therefore the importance of time spent with family is more a value rather than an experience.

In the example of Kayleeism, Kaylee describes the moment in class when she recited the pledge of allegiance and farted thus making the other students laugh. When asked to explain this experience further, it was clear that for Kaylee, causing laughter amongst her peers is a value.

While it is hard to decipher the difference between experiences and values, it is important to do so cautiously. With the use of values as a basis of design there is a possibility to miss entirely the significant experiences that have enforced these values. This idea

is best illustrated in the Schröder House where Mrs. Schröder made it clear to the architect from the beginning that it was important to have a house with multi-functional spaces. She might have had specific experiences which caused this value, but for this specific house the value was more important than the experience.

The next series of observations are in regard to the proposed design process. From an overall standpoint the Rings of Method aimed at breaking down the design process into a series of stages that anyone could easily navigate through. In most scenarios that is typically what designers aim to do for themselves. The vast difference is that designers are trained at doing this and therefore the order of simplification has become natural. For a person who is not a designer this can be a very overwhelming task. By creating a broken down method, the users can easily focus on specific tasks and not worry about trying to synthesize everything all at once. Kaylee explained that the process allowed her to partake in activities that she enjoys. Further more Kaylee described that she did not realize how all of the art work she was doing would turn into a house in the end. For Kaylee there was an exciting and surprising moment at the end where she finally realized how every aspect of the process transpired together. Recalling one of her original comparisons about a house and a dance studio, Kaylee feels that in this particular house she will learn something new everyday because of the many layers both literally and figuratively.

Contrasting to Kaylee, Justo began the design process with a bit of a preconceived idea for the design of his house. When asked about the benefits of this process, Justo explained that it helped him to break away of his original desires of his house by forcing him to focus on small meaningful tasks. In the end he was glad the process forced him to do so because he feels the house design carried much more personal meaning and significance than anything he could have originally thought of. Justo

particularly enjoyed the use of coins throughout the design and the translation of the importance embedded in the coin to significance of spaces in the house. Overall Justo feels that the house is a reflection of his own elegant history.

Although each user had their own opinion about the proposed process, in general they agreed that the process helped in allowing them to breakdown a very complex problem in a personalized manner. Feedback from the users confirmed that the proposed process was simple enough to understand but at the same time not so overly simplified that the tasks were boring or seemingly pointless. The rationale for this strategy came from the analysis of DR Byen, and thus proved to be an important strategy in the development of the process.

From the beginning of outlining a design methodology that utilizes significant experiences, the idea of evolution was strongly understood as an important driver. Because of this the process was intended to be adaptable. Of the three users of Justo was the only user who did not modify the original design method outlined in chapter 3.3. For Kaylee the decoding or analysis occurred at almost every phase. While there was a major emphasis during the actual decode phase, a major part of Kaylee‘s process was a constant analysis.

For Typhani the entire first three rings were grouped into one big ring. There are two reasons that this mainly happened. As explained earlier, the experiences of Typhani caused an elongated learning phase. While standing at the crossroads, she was ultimately going through a new set of significant experiences that would influence the design of her house. After the initial learning stage, some concepts about her house were already being formulated, but going through new experiences, the solutions inherently became negated. Half way through the project, the learning stage had to be revisited to account for these new experiences. In the end old

concepts were blended with new concepts which laid the groundwork for her house design.

Typhani describe this circular repetitive process as familiar because she is a designer at heart. Being a choreographer, Typhani has her own design process where she must group and organize ideas to create a dance. Different from Justo and Kaylee, for Typhani it was easier to be give her all of the factors that could affect the design and allow her the best method of sifting out the least relevant ideas while also determining the ideas that are most meaningful. Setting aside Typhani's designer qualities, at first glance the Steps project appears to be a failure because Typhani was not a suitable test user according to the parameters of this design experiment. While the Steps project did not succeed in the realm of this design experiment, it strongly supported the importance of a design methodology that is driven by the user. Typhani's experiences drastically altered her perception of Los Angeles much more than a failure, the Steps project embodies every important reason why an evolutionary, user-driven design is a suitable and important design methodology that should be considered as an applicable design methodology.

Taking a closer look at the evolutionary aspects of each design, it is difficult to determine whether or not the concepts developed would have produced an effective and significant experiential design. This is not to say that the system designed would not have worked but whether or not the experience created by the system is significant. The only true way to test the effectiveness of the system would have been to create a prototype of the system and allowing the user to test the system over a period of time. Although no actual mock-up was created, the process developed for Kayleeism was a prototype for the evolutionary system of the house. When describing the evolutionary process Kaylee points out that she was excited for each new step because it caused her to think about

new experiences. She also explained her fondness for having a room that is a growing art piece.

The design experiments proved to be successful in helping to support the overall thesis. The main idea of adaptability was the most important aspect of this design process. It ensured that the process was specific and understandable to each user. Building from the benefits of the case studies and at the same time learning from their faults, the proposed design methodology appeared to be a valid growing process that could be implemented if the desire is present.

chapter 6. conclusion

There is a large emphasis on the design of architecture to create spaces that have an experiential influence on the user. Depending on the user, the experience created might not carry much significance. Looking at the various user based design methodologies the aim of this thesis was to propose a new methodology that creates meaningful experiences for users. Formulating the arguments for this thesis, it was clear that in order to effectively create an architectural experience specific to a user, that user must be utilized in the design process.

Evaluating various design methodologies, there are four specific processes which focus on incorporating the user in on the design process. Analyzing user-centered design, participatory design, meta-design, and service design characteristics are revealed which illustrate the benefits of user based design processes. Looking at the real life application of these design thinkings, conclusions were discovered within different case studies. The characteristics of the user based design thinkings along side the lessons learned from the case studies allowed for a new design methodology to be formulated.

Using an exploratory experiment, this formula was tested with the design of three houses for three different users. While there are similarities between the key experiences of the test users, each process explored was vastly different. Although it is difficult to fully argue whether or not the experimental process was successful, there are aspects of the experiments which support the hypothesis.

Infusing the design process with significant experiences of the user did prove to enrich the design process for the user, ultimately creating a closer relationship between the user and the process. The ability to test the experiential design created by the user was the one aspect lacking in the experiments. In this thesis it is hard to understand whether

or not the final design is a significant experience for the user without actually creating the designed experience. Despite this lacking aspect, the strong connections between the users and their artifacts allow for highly supported assumptions about the possible outcome of the built design.

Taking this research a step further, it would be worth studying how this proposed design methodology would be modified for a user group. To put more focus on creating an initial design methodology the project was framed to have single users. Having a user group adds a great level of complexity to this project. For example, looking at the scenario of Kaylee and Typhani, for each user dance is an important experience, but in each scenario their own understanding and importance of dance greatly changes how dance is experienced. If Kaylee and Typhani were to be combined as one user group, the experience of dance would have to be interpreted in a way that is meaningful for both. For this type of project to be successful it is plausible to say that the methodology would need to be modified to account for a more diverse learning stage. Proposing another level of complexity to the experiment, it would be worth studying how various user groups react to different building typologies. Using the dancers again, would their understanding of dance change if the proposed building was a commercial space, or hotel, or science museum? It is also possible that their understanding of dance does not change but that the common understanding of a specific building typology changes.

The primary goal of this thesis is not to argue that current design methodologies are wrong, but rather to propose a new design thinking. By understanding the biological process of trees and interpreting them into human experiences it is easy to see that humans over time evolve. And, if experiential design is the final goal, then what is the most appropriate method for designing a significant spatial experience that grows with the user?

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